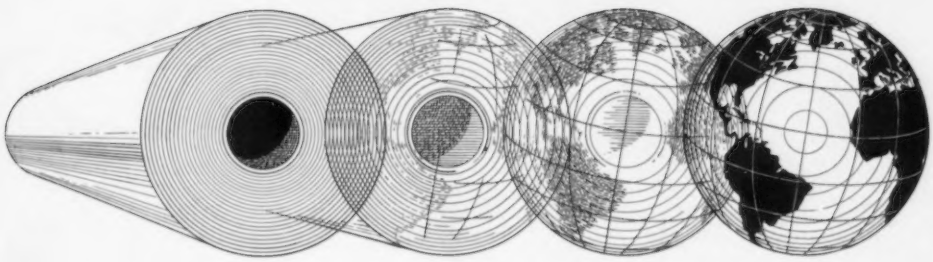
PAPER TRADE
JOURNAL

All About the
East Texas Mill

July 30, 1956



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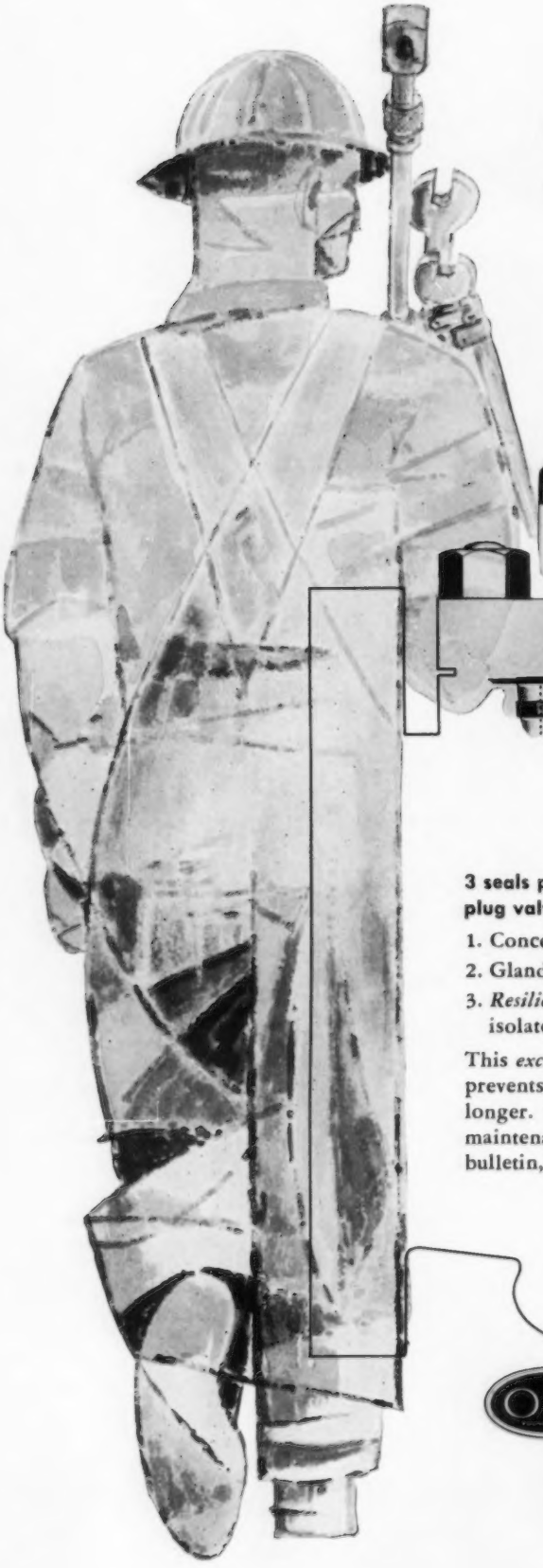

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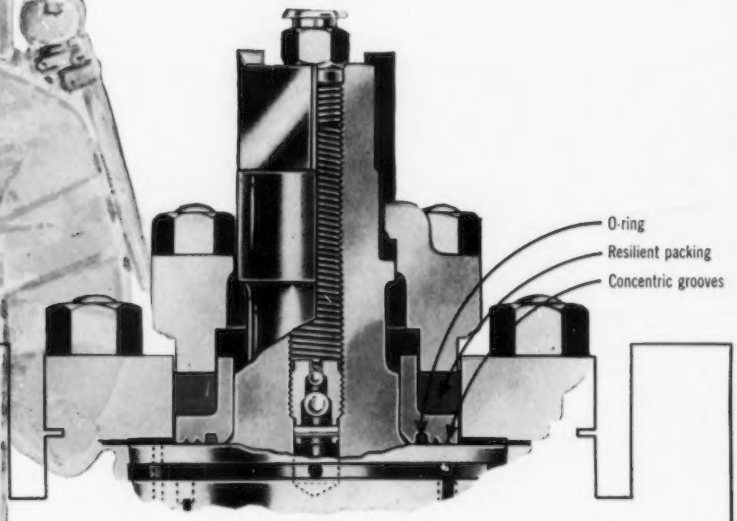

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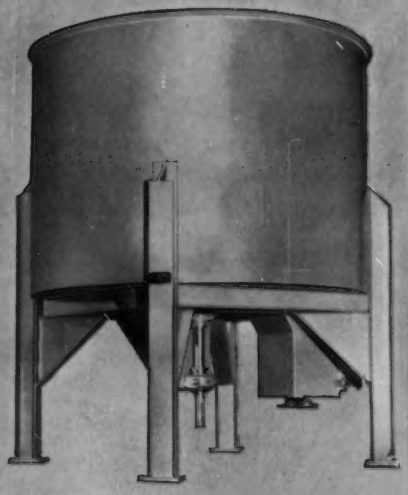

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REMEMBER THESE DATES

SEPT. 27-28: First Paper Deinking Conference, Harris Hotel, Kalamazoo, Mich.

OCT. 8-11: Eleventh Engineering Conference, Sheraton-Plaza Hotel, Boston, Mass.

OCT. 17-18: Corrugated Containers Conference, Hotel Statler, St. Louis, Mo.

OCT. 22-25: Protective Packaging and Materials Handling Exposition, Kiel Auditorium, St. Louis, Mo.

July 30, 1956, *Vol. 140, No. 31*

TRENDS 9

NEWS BRIEFS

Champion Borrows $20,000,000 to Expand 11
K-C to Build in Conn. 11
Expansion at Ketchikan 12
New Groundwood Mill Starts Up 12

NEWS OF CONVERTERS 14

NEW LITERATURE 15

PRICES OF FIBERS AND MATERIALS 16

FEATURE ARTICLES

HOW TO MAINTAIN WEST COAST WOODROOMS
Report from largest Pacific Coast mill on this serious problem 22

INDUSTRY EXPANSION CONTINUES ACCELERATION
A discussion and list of twenty new expansion projects begun since June 15th 26

COMPLETE DESCRIPTION OF EAST TEXAS MILL
First detailed report on Texas' first bleached kraft market pulp and food board plant 28

NEW EQUIPMENT AND SUPPLIES 44

NEWS OF SUPPLIERS 45

PAPER PEOPLE 46

FIGURES OF THE WEEK 47

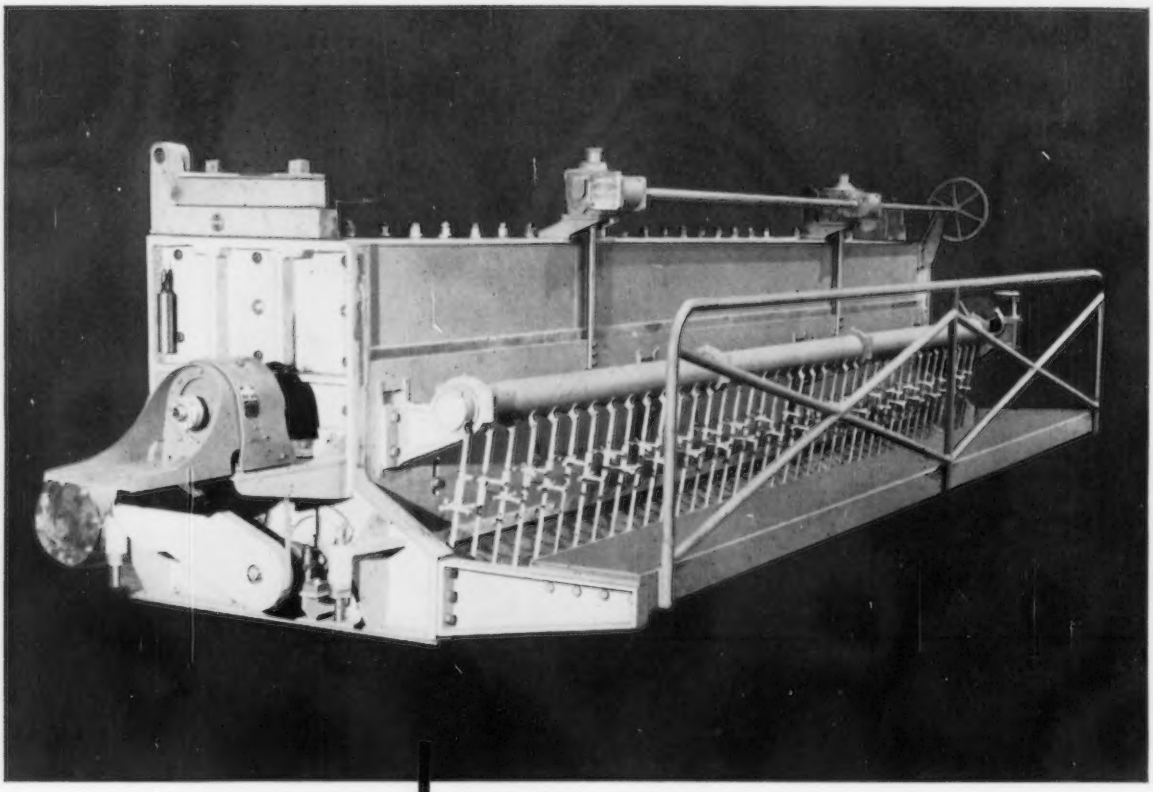
CLASSIFIED ADVERTISERS 50

ADVERTISERS INDEX 54

IF YOU MAKE

FOURDRINIER BOARD

THIS IS FOR YOU



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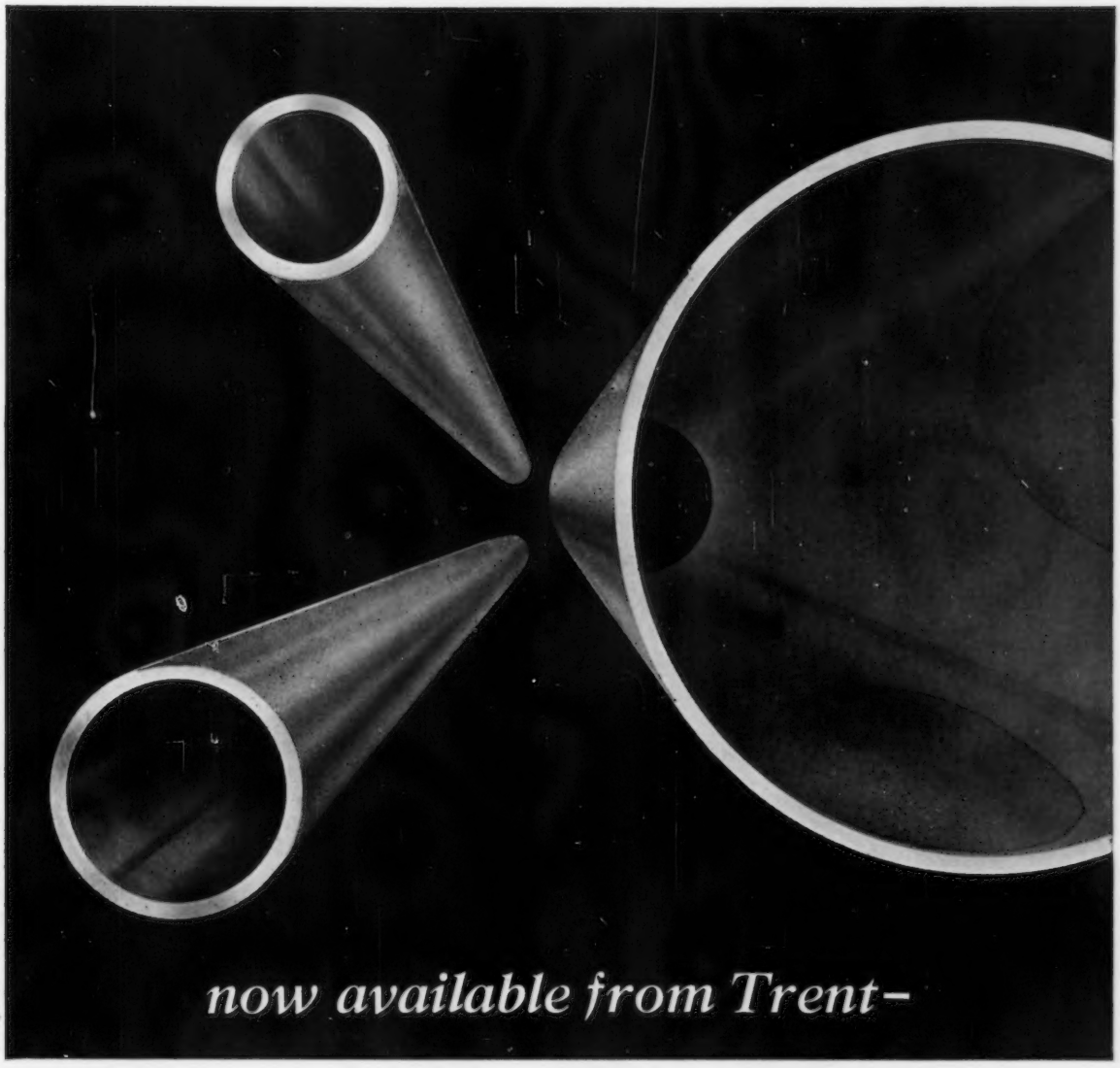

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Steel And Paperboard

Paperboard production may not be affected by the steel strike. Strong rumors indicate the government will apply pressure on both management and the workers to effect a speedy settlement. Many observers also feel the steel rebound will stimulate a fresh new business upswing, equal to or greater than that of 1952.

New Markets For Rayon

The push by producers for new rayon markets is meeting with some success. The combination of super strength rayon with a nylon filler has produced a conveyor belt product which is stronger than steel, a B. F. Goodrich spokesman announced recently. The new product permits belt tensions to 200 lbs. per square inch, and greatly increased span lengths. Elsewhere, woven rayon backing for carpets and rugs, it is said, will produce a new area of demand which as yet has been barely tapped.

Senate Plea: Put Waste To Work

The amount of wood wasted and thrown away each year by saw mills in Northern California is sufficient to keep ten 150-ton pulp mills going full steam, Paul W. Stathem, National Forest supervisor, told a Senate committee last week. Mr. Stathem has asked for Senate support in helping to bring the woodpulp industry to this area. (See news item pg. 11.)

Expansion Tempo Holds

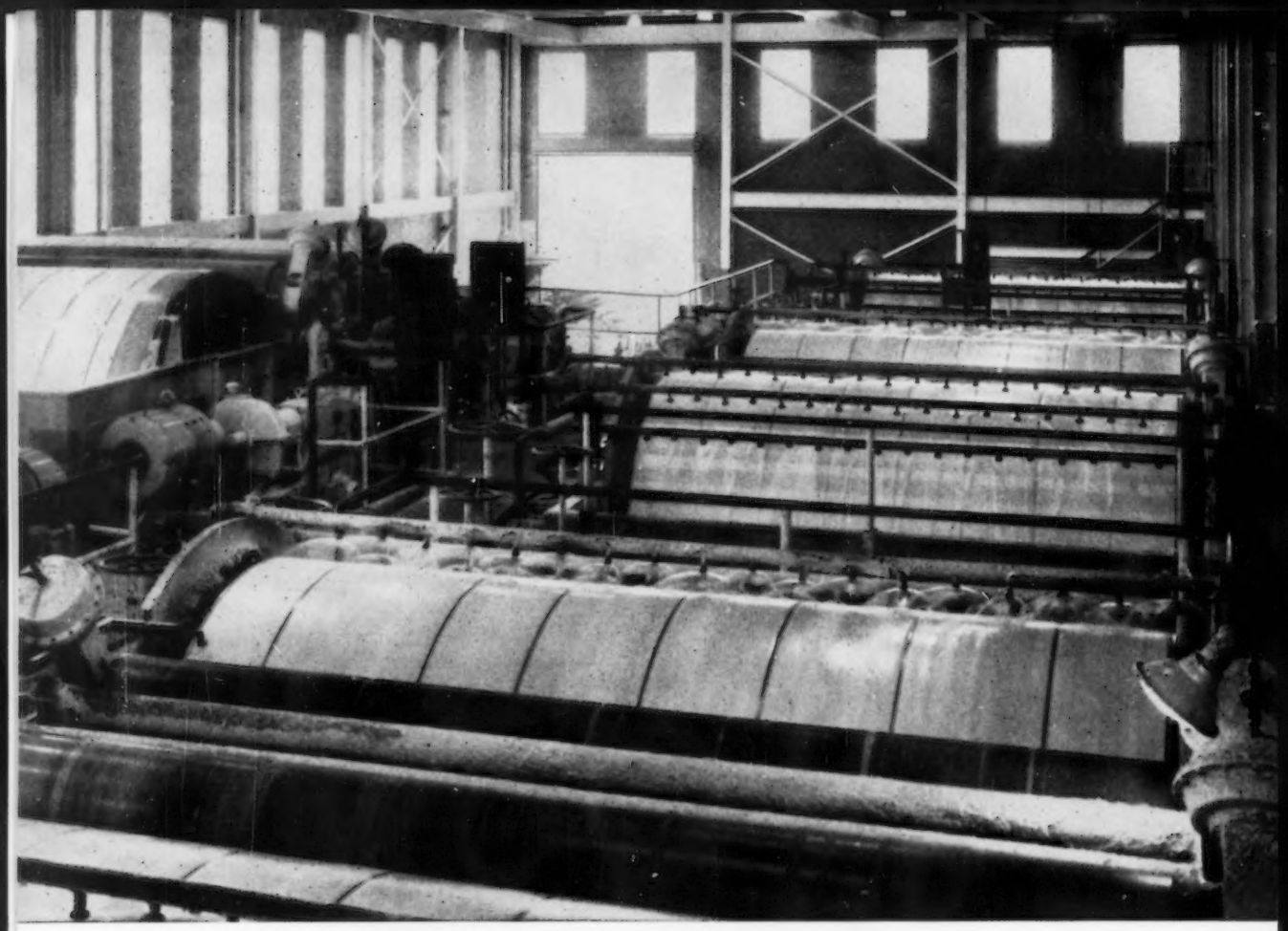
The list, in this issue, of 20 new expansion project announcements made since mid-June, shows that there is currently no sign of a let-up in the tempo of increases in production capacity.

Scandinavian Pulps Show Further Decline

Woodpulp imports from Canada during the first five months of this year were up 14 per cent over 1955, while imports from Scandinavia declined some 13 per cent during the same period. The increase alone in import tonnage of pulp from Canada is nearly as great as the combined receipts from all of Europe, during the first five months of this year.

Gum Slip Boosts Tall Oil Prospects

The tremendous upshoot in demand for rosin has left producers in a tizzy, and has forced them to seek alternative materials such as tall oil in a frantic effort to supplement rosin supplies and at the same time satisfy paper company size demands. Rosin use last year amounted to 990 million lbs., 42 million lbs. more than was produced. In April and May of 1956, rosin production dropped from 38.7 million lbs. to 33.6 million. Government surplus stocks have thus far made up for the shortage, but tall oil will become increasingly important for these size needs. Paper usage of rosin rose from 61.4 million lbs. in 1950 to 250 million lbs. last year.



Stainless Steel mesh withstands white water corrosion at Great Northern's chemi-groundwood plant

The chemi-ground hardwood pulping process is being pioneered by Great Northern Paper Company at their East Millinocket, Maine, plant.

In one important operation, low consistency screened chemi-groundwood pulp is thickened by running into tile vats containing revolving cylinders covered with Stainless Steel mesh. Those cylinders are shown in the picture. White water passes through the mesh. Stainless Steel is used *exclusively* for these screens, because it is the most economical material for handling the corrosiveness of the white water (acid treated).

In certain tests, Stainless Steel has been unaffected by conditions that destroyed other materials in extremely short order.

No other material can match Stainless Steel for paper plant use. No other material fabricates so easily, yet is so strong, corrosion resistant, smooth and easy to clean. Be sure of service-tested quality when you buy Stainless. Specify USS Stainless Steel.

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UNITED STATES STEEL

To Make Hardwood Pulp at Pensacola

$1,500,000 storage facilities for hardwood chips and hardwood pulp are under construction by St. Regis Paper Co. at its Pensacola, Fla. Kraft Center. Completion of this project will provide St. Regis with approximately 300 tons of hardwood pulp per week to be made into bleached paperboard used for frozen food cartons, drinking cups and milk containers.

Equipment being installed consists of two 80-foot chip silos, and two 60-foot pulp storage chests, both 36 feet in diameter, as well as conveying equipment. The softwood pulp mills will process the hardwood chips on a one-day-a-week basis.

The storage chests will be of prestressed tile construction which prevents cracks from temperature changes and load stresses. Each of the two chip silos has a capacity of 200 cords and will be used for storing pine and hardwood chips as required.

The project is being handled by the Kraft Division Engineering Department under the direction of A. R. Major, chief engineer and D. A. Williamson, construction engineer. Completion of the storage facilities is expected to be in March, 1957.

May Reduce Canadian Board Tariffs

Some Canadian Paperboard manufacturers who were found guilty 16 years ago of violating the Combines Act, were accused again by the restrictive trade practices commission of combining to fix prices and restrain competition.

In a report tabled in the Commons by Stuart Garson, minister of justice, the commission recommended the government consider abolishing or reducing the "substantial measure of tariff protection" afforded the industry if it failed to break up the regulating organization which it claimed had operated in one form or another since 1935.

"The commission believes it is against the public interest that the reduction in competition resulting from the existence of the customs duties should be further extended by the arrangements among Canadian manufacturers of boxboard who operate within the shelter of the tariff," the report asserted.

Champion Borrows $20 Million To Expand

Champion Paper and Fibre Co. are floating a $20 million dollar bond issue for increases to plant capacity. Largest single item is a new 240-inch Beloit fourdrinier paper machine for speeds of 1300-2000 f.pm. for installation at the company's Canton plant. Also included in the plans are additional recovery capacity for the Pasadena mill.

K-C To Build in Connecticut

Purchase of 100 acres of land at New Milford, Conn., as the site for a new paper mill and converting plant has been announced by Kimberly-Clark. New Milford is 70 miles north of New York City.

Kimberly-Clark's facial tissues, table napkins and toilet tissues will be produced in the new 300,000 square foot plant to be erected on the site. Completion date for the manufacturing and converting mill is set for the sping of 1958.

The New Milford program is in keeping with current Kimberly-Clark policy of locating its manufacturing plants close to mass markets. Similar action was taken on the west coast, where a new Kimberly-Clark mill is currently in full operation at Fullerton, Calif., 30 miles southeast of Los Angeles.

Seek Pulp Mills For California

A national forest supervisor has asked a Senate committee to take the initiative in a program to attract the wood pulp industry to Northern California in an effort to end the waste of valuable wood residues.

Paul W. Stathem, supervisor, Shasta-Trinity National Forest, told the Senate Interim Committee on public lands:

"In Northern California there is enough mill residue to support up to ten 150-ton pulp mills."

He said in addition to the wood wasted by milling practices, an estimated 25 per cent of the usable fibers are left in the woods at the present time because of current logging practices.

He told the committee that before wood pulp mills can be established information must be gathered on 1) Water supply. 2) Availability of power and heat. 3) Transportation. 4) Labor supply. 5) Market.

Dewitt Nelson, state director of natural resources, told the committee a study is already under way on the possible effects of a pulping industry on Northern California streams.

Expansion at Ketchikan

JOHN EVANS PAPER TRADE JOURNAL
15 WEST 47 NYK

ANSWERING YOUR TELEGRAM IN CONNECTION WITH KETCHIKAN ACTIVITIES, WE EXPECT TO SPEND APPROXIMATELY FOUR MILLION DOLLARS MOST OF WHICH IS TO BE SPENT ON FURTHER INSTALLATION OF EVAPORATORS AND RECOVERY BOILER TO COMPLETE THE BURNING OF WASTE LIQUOR AND FURTHER RECOVERY OF CHEMICALS. WE ARE ALSO INSTALLING ADDITIONAL DIGESTER AND OTHER EQUIPMENT IN THE MILL ITSELF TO BALANCE OUT PRODUCTION WHICH PROBABLY WILL BE SLIGHTLY INCREASED TO NOT OVER TEN PERCENT.

L TURCOTE PUGET SOUND PULP AND TIMBER CO.

New Groundwood Mill Starts Up

The new groundwood mill of Lafayette Pulp and Paper Co. will start-up the first of August. The mill at Sherbrooke, Que., will start production with an initial capacity of 35 tons per day. Equipment consists of four 3-pocket grinders, seven wet machines and four hydraulic presses. J. W. Marcotte is president and Jacques Marcotte is general manager. The company is affiliated with Lotbiniere Pulp and Paper Co. of Nicolet Falls, Que.

Soil Filtration in S.W.L. Disposal

Studies of soil filtration for disposing of sulphite mills' spent liquor have been completed at the pilot plants of the Sulphite Pulp Manufacturers' Research League in Appleton, Wis.

Three years of continuous testing have convinced the league that where wholly favorable circumstances exist, soil filtration can help to solve a mill's stream improvement problem, or even may provide a complete answer. But where natural conditions are wrong for soil filtration, it can be useless or downright harmful. Type of soil, area available, and underlying geological formations hold the key to whether soil filtration can be of significant value to any particular sulphite pulp mill in its continuing battle to keep its river clean.

During the entire pilot plant research period starting in 1953 and ending just now, spent sulphite liquor was filtered at carefully controlled input rates through a battery of 15-foot soil columns. Before-and-after analyses of the liquor for biochemical oxygen demand (B.O.D.) provided a principal measurement of the amount of improvement achieved.

This processing brought into sharp focus the limitations upon the usefulness of soil filtration. Maximum B.O.D. removal was attainable only when liquor was fed at moderate rates to avoid overloading. Several Wisconsin mills now experimenting with soil filtration are regulating their own disposal operations accordingly. For practical use of the process, a mill needs the right type of soil and adequate acreage.

Another problem is the geology in and around the filtration tract. "It is important that rock strata and faults lead away from sources of surface and underground water supplies. Otherwise, the mill might face the necessity for sharply curtailing its soil filtration program after elaborate and costly installations had been made."

Paper and Board Production

According to the American Paper and Pulp Association, the ratio of the United States production to mill capacity for the week ending July 14, 1956, was 89.5 percent, compared with 64.0 percent, revised, for the preceding week. The ratio was 89.3 percent for the corresponding week a year ago. Mills producing newsprint exclusively are not included.

The paper board production ratio for the week ending July 14, 1956, was 70 percent, compared with 56 percent for the preceding week and 77 percent for the corresponding week last year.

(Detailed statistics on page 47.)

Pollock-Pacific Combine

The Pacific Waxed Paper Co., Seattle, Wash, has become a subsidiary of the Pollock Paper Corp. of Dallas, Texas.

The move was made by the parent organization of both companies, the St. Regis Paper Co. in a "transfer" of properties. The transfer makes the Pollock-Pacific group one of the top three producers of waxed food wrappers in the nation.

The combined companies will operate seven waxed-paper plants across the United States. Pacific president Allen B. Engle, who made the announcement, said combined 1955 sales for the two firms exceeded forty million dollars.

Canadian Fine Paper Report

Canadian fine paper production, reflecting increased demands from both domestic and foreign markets, was greater in May and for the first five months this year than in 1955. May output was 22,451 tons, an increase of 17.2 per cent from the 19,153 tons produced in May last year. Output for the first five months was 102,496 tons this year, up by 11.1 per cent from last year's total of 92,273 tons.

Shipments to Canadian consumers in May were 21,673 tons, and for the first five months were 97,851 tons, an increase of 11.7 per cent from the 87,564 tons shipped last year. Exports during the month were 1,152 tons this year as against 945 tons last year. For the first five months exports were 6,454 tons, an increase of 5.7 per cent from the 6,107 tons exported in the same period last year.

Total shipments in May were 22,825 tons this year and 19,979 tons last year. In the first five months total shipments were 104,305 tons this year as against 93,671 tons in 1955.

Coated paper processed in May was 2,595 tons in 1956 as against 2,399 tons in 1955 while shipments for the month were 2,683 tons and 2,381 tons for the same periods. Coated paper processed during the first five months was 11,867 tons as compared with 11,182 tons in 1955 while coated paper shipments for the same period were 12,188 tons and 11,141 tons.

Newsprint Consumption Up, Production Follows Suit

Consumption

U. S. newsprint consumption for June and first six months 1956 reached another all-time high. Total estimated newsprint consumption in the U. S. for June, 1956 was 555,738 tons, compared with 555,587 tons for June, 1955. For the first six months of 1956, total estimated U. S. newsprint consumption was 3,413,621 tons as compared with 3,285,624 tons for the same period in 1955.

Newspapers reporting to the American Newspaper Publishers Assn. consumed 422,361 tons of newsprint in June, 1956, compared with 422,246 tons in June, 1955, and 384,444 tons in June, 1954. This was an increase of 0.03% over June, 1955, and an increase of 9.9% over June, 1954. There were four Sundays in each June 1956, 1955 and 1954. During first six months of 1956, reporting newspapers used 2,594,352 tons of newsprint, an increase of 3.9% over 1955 and an increase of 11.3% over 1954.

At the end of June, 1956 stocks of newsprint on hand were 27 days supply and 8 days supply were in transit for an average of all daily newspapers reporting to the ANPA, compared with 23 days supply on hand and 7 days supply in transit at end of May, 1956. There were 25 days supply on hand and 6 days in transit at end of June, 1955 while newsprint on hand at end of June, 1954 totalled 36 days supply with 6 days supply in transit.

Production

Production and shipments of newsprint in North America during June, 1956 amounted to 678,274 tons — a volume surpassing that of any June on record—and to 688,864 tons respectively, compared with corresponding totals of 640,742 tons and 678,550 tons in June, 1955, according to the Newsprint Service Bureau. Output in the United States was 141,917 tons—except for 1926, the highest June total in history—and shipments were 144,394 tons while Canadian production amounted to the record June high of 536,357 tons and shipments to 544,470 tons.

The 848,166 tons turned out by United States mills through the end of June this year was 101,191 tons or 13.5 percent greater than in the first six months of 1955. Output in Canada of 3,196,159 tons also was 139,199 tons or 4.6 percent above that in the corresponding period of last year, thus the record continental half-year total of 4,044,325 tons was 240,390 tons or 6.3 percent higher than in 1955.

U.K. Did Lower Import Duty

July 18, 1956

The Editor,
Paper Trade Journal,
Dear Sir,

I was interested to read your article on the 25th June last, on Lower Duty on Imported Papers and Paper Board, in which you mentioned that the United Kingdom made no concessions on the duty on Paper and Board imported into the U.K. at the recent discussions in Geneva.

I am afraid that you have been misinformed, since I attach a list showing the reductions made which the U.K. Government are bound to bring into operation before January 31st, 1957.

As you will see, they are of quite a substantial nature.

I should be glad if you could find room to publish this, in order that your American readers might not be left under a false impression of the true position.

Yours truly,
G. Godfrey—Isaacs.
George Harrison (Agencies) Ltd.,
22, Upper Thames St.,
London, E.C.4.

G.A.T.T. TARIFF CONCESSIONS — PAPER & BOARD

Description	New Duty	Old Duty
Printing Paper on Rolls or sheets not less than 16½" x 21".	16.2/3rds%	20%
Duplicating Paper size not less than 16½" x 21".	16.2/3rds%	20%
Strawpaper.	16.2/3rds%	20%
M.G. Tissue Paper.	14%	16.2/3rds%
Pure Kraft.	14%	16.2/3rds%
M.G. Paper (excluding fully bleached white poster).	14%	16.2/3rds% (M.G. limit. Kraft 25%)
Greaseproof Paper.	14%	16.2/3rds%
Semi Chemical Fluting.	20%	25%
Imitation Greaseproof Paper.	14%	25%
Vulcanized Fibre Boards	12½%	15%

Ed: Statements of our June 25th issue were credited to the "Import Committee of the American Paper Industry." We were not in a position to check their accuracy.

Another Carrot is Dangled

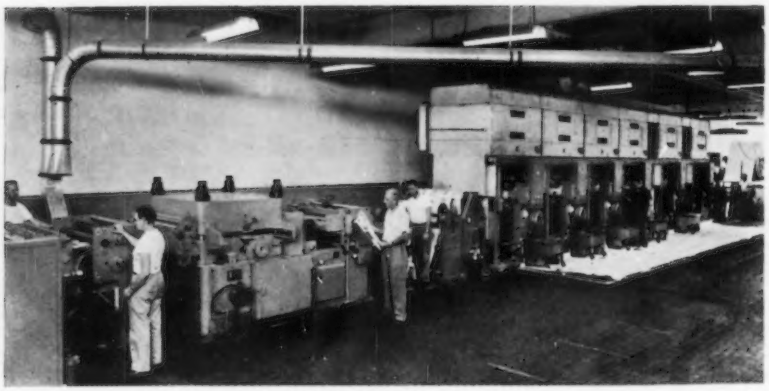
Description of the shipment of so called "Nodular" pulp, i.e. pulp in crumb form from a screw press, in the East Texas article in this issue, opens interesting possibilities. The editors have been concerned at the backwardness of the Northeast in the matter of building pulp mills to use plentiful local hardwoods. We have written of our fears that the hundreds (close to 300) of small mills in the area by their dependance on pulp shipped in from long distances, are allowing their economic position to deteriorate as opposed to mills in other areas.

This new development offers new attractions for the establishment of semi-chemical pulp mills in the Northeast, particularly in New England, to supply local mills. Shipment of nodular pulp would reduce the capital cost for the pulp mills, since no pulp dryers or wet machines would be required, as well as practically eliminate labor costs in preparing pulp for shipment.

Power consumption for re-slushing the pulp at the paper mill would be only a small fraction of that for dried pulp. Many mills could make considerable savings by the reduction or elimination of baled pulp inventories.

John C. W. Evans

NEWS OF CONVERTERS OF PAPER AND PAPERBOARD



High-Speed Gravure Press For Gair's Elkhart Plant

The Elkhart, Ind., American Coating Mills plant of Robert Gair Co., Inc. has completed installation of a six-color Staude 1000 gravure press with tandem cutting and creasing press.

The new installation does three closely related things which are usually done almost independently of each other by three separate pieces of equipment. With a continuous web of boxboard feeding in at one end, the new unit first prints it at a speed as great as 1,000 f.p.m. The printed web flows on to the cutting and creasing press where it is cut into carton blanks. The third operation is the automatic stripping of the excess boxboard surrounding the individual carton blanks. The finished blanks, ready to be folded, glued and packed for shipment, then come streaming out the delivery end at a rate of several hundred thousand an hour.

Each of the six printing stations is, in effect, a complete rotogravure press. Two of the six can be arranged in line to print on either side of the web. Each station also has its own self-contained ink reservoir which is quickly attached or removed without the use of tools.

The engraved cylinder at each station is positioned in a roller-mounted carriage that is placed in printing position or removed from the press as a complete unit. The adjustable ink applicator and the ink fountain are component parts of the assembly.

The web is dried, after printing, in a specially designed balanced air dryed. By maintaining a greater volume of exhaust air than the input of heated air, the dryer vents all traces of solvent laden air.

Bemis Sales Executives Assigned New Duties

Four Bemis Bro. Bag Co. sales executives have recently been assigned new duties.

R. V. Scott, manager of the Chicago General Sales Division, will attend the fall session of the Advanced Management Course at Harvard Business School, following which he will be appointed to a new executive position within the company.

W. F. Mulvaney, supervisor of multiwall bag sales, will succeed Mr. Scott as manager at Chicago. Mr. Mulvaney has been with Bemis since 1939, when he started as a clerk at their Peoria plant. He was sales manager at Peoria before his transfer to the St. Louis general offices.

W. J. Ray, supervisor of textile bag sales, will succeed Mr. Mulvaney as supervisor of multiwall bag sales. Mr. Ray joined Bemis at their Indianapolis plant in 1933. He was assistant sales manager there when transferred to the general offices as assistant textile bag sales supervisor in 1953.

C. L. Ferguson will assume the responsibilities of textile bag sales supervisor, while continuing as supervisor of waterproof bag sales. Mr. Ferguson joined Bemis at their St. Louis bag factory in 1922. He was appointed manager of the Waterproof Department there in 1943, and was transferred to the general offices in 1952. As supervisor of waterproof bag sales, he has also been responsible for related items including flexiply crinkled-kraft multiwall bags and Flexipipe ventilation tubing.

Break Ground for $2,000,000 Container Plant

Ground has been broken for the start of a $2 million container manufacturing plant by Growers Container Corp. of Salinas and Pure Gold Supply Co. of Redlands, Calif.

The firms will build a 140,000-sq-ft concrete plant on a 12 acre site in Fullerton, Calif.

The new plant is expected to be in production by January, 1957. While particular emphasis will be on the manufacture of containers for citrus and agricultural use, a large percentage of the plant's production will be reserved for manufacturing cases to be used in packing industrial products, it was stated.

Continental Can Will Acquire Coseco

Beryl Weiner, president of COSECO (Coast Service & Converting), Los Angeles, has announced the acquisition by Continental Can Co., effective about September 1, of COSECO's equipment and inventory. Coseco manufactures Polyethlyene Bags and is a paper converter.

Mr. Weiner will join the Shellmar-Bether Flexible Packaging Div. of Continental Can Co. as a sales specialist in the West Coast territory with headquarters at the Southgate (Los Angeles) plant.

Mr. Weiner started the Coseco firm in Los Angeles in 1949. Previously he had operated the Weiner Paper Co., wholesaler in San Antonio, Texas.

Sutherland to Add 9,000 Square Ft. Addition

Sutherland Paper Co., Kalamazoo, Mich., will construct a $94,900 addition to its Division 5 converting plant in Kalamazoo.

The two-story addition will be of concrete and block and will provide 9,000 square feet of floor space for housing an extension of present manufacturing facilities. Work will start on the structure following demolition of a small building now on the site.

Collett-Sproule Boxes In New Quarters

Collett-Sproule Boxes Ltd. recently occupied a new building at 930 Warden Ave., Toronto, Ont. The one story plant of 48,000 sq. ft. was designed specifically for box manufacturing. The firm makes folding and set-up boxes of all types and has recently acquired the assets of Lawrason-Doughty Ltd., formerly engaged in a similar line of business.

Automobile Soap in Plastic Coated Paper Containers

Plastic-coated paper containers designed by the Sealright Co., Inc., of Fulton, N. Y. have been selected by Bitt Chemicals, Inc. of Watertown, N. Y. to merchandise its automobile soap.

Easy-to-remove and replace covers make this container ideally suited for storage use around the workshop.

Firm Shares Profit On Attendance Basis

Twice a year, Joseph W. Edwards hands out a pile of checks to his employes—mostly because they come to work.

Mr. Edwards, president of Edwards Brothers Inc., Ann Arbor lithographers, has a profit-sharing plan, based on an employe's attendance record.

This month Edwards handed out 152 checks totaling $51,020. It came to roughly $416 an employe who had missed no days of work. Workers who had missed a day or two of work get less. The bonus works out to about 25 cents an hour above the hourly rate for the period Dec. 1, 1955 to June 30 this year.

Mr. Edwards makes two distributions —one in the summer and the other before Christmas. The total comes to 20 percent of the company's profits Edwards said.

Grace Named Treasurer Of Bagcraft Corp.

John C. Grace has been appointed treasurer and controller of Bagcraft Corp. of America, Chicago, Ill., manufacturers of paper bags.

NEW LITERATURE

BAUER PULP-THROUGH REFINERS. (Bulletin P-13-B) Provides illustrated sales copy and general specifications. These are built in two sizes with 44-inch and 32-inch diameter single revolving discs. **Bauer Bros. Co.,** 1758 Sheridan Ave., Springfield, Ohio.

BAUER-GRENCO CONTINUOUS DIGESTER AND RAPID CYCLE DIGESTERS. (Bulletin P-17 and P-17.) Contain actual photographs of installations and schematic diagrams. **Bauer Bros. Co.,** 1758 Sheridan Ave., Springfield, Ohio.

B&W ALLOY STEEL TUBING. (Bulletin TDC-184) Presents condensed technical data on 12 of the most widely used "4100 series" of alloy steels for mechanical uses. **Babcock & Wilcox Co., Tubular Products Div.,** Beaver Falls, Pa.

COCHRANE JET-TRAY DEAERATOR. (Bulletin 4651) Describes a deaerator design that eliminates tubular vent condensers without imparing efficient purging of non-condensible gases. **Cochrane Corp.,** 17th St. below Allegheny, Philadelphia 32, Pa.

DART MALLEABLE IRON UNIONS. (Brochure) Contains illustrations of unions and union fittings which feature the true ball joint bronze-to-bronze seats. **Fairbanks Co.,** 393 Lafayette St., New York 3, N. Y.

DORRCO MONORAKE. (Bulletin 6001-R) Includes sketches, line drawings and installation photographs of the unit and its components. **Dorr-Oliver Inc.,** Barry Pl., Stamford, Conn.

INTERLOCKED ARMOR CABLE. (Bulletin 19-555) Provides complete product listing, including components needed for a complete system, as well as installation information, material handling and space requirements. **General Electric Co., Wire & Cable Dept.,** Bridgeport 2, Conn.

MT. HOPE FLOATING ROLL GUIDES. (Bulletin F.R.G.) Tells in a few words how to increase production in any guiding operation in manufacturing processes—paper or any other material which must not be nipped or pinched. **Mt. Hope Machinery Co.,** 15 5th St., Taunton, Mass.

ODOR CONTROL IN SULPHATE PULP MILLS BY USE OF ALAMASK. (6p Brochure) Provides data based on tests and results obtained by major kraft pulp producers after three years of continuous use of Alamask. **Engineering Section, Rhodia, Inc.,** 60 E. 56th St., New York 22, N. Y.

RAPISTAN TABLE-VEYOR. (Bulletin 1000-56) Illustrates and explains the many uses of the horizontal belt conveyor. Also contains complete specification data. **Rapids-Standard Co., Inc.,** 342 Rapistan Bldg., Grand Rapids 2, Mich.

ROCKWELL VALVE NEWS. (House Organ) Contains illustrations and details on their butterfly and "Slim-Jim" valves. **W. S. Rockwell Co.,** 198 Eliot St., Fairfield, Conn.

AMERICAN-MICROSEN SERIES 130. (Bulletin MG10) Describes both the Millivoltmeter and Microammeter Recorder. Also includes charts, engineering drawings, tables, and photographs, as well as operating information and design features. **Manning, Maxwell & Moore, Inc., Industrial Controls Div.,** 250 E. Main St., Stratford, Conn.

BAILEY FLOW TRANSMITTER. (Specification Sheet P22-6) Provides cross sectional view of the square root extractor mechanism, showing the design features. Also includes engineering drawings and standard ranges. **Bailey Meter Co.,** 1050 Ivanhoe Rd., Cleveland 10, Ohio.

CONSTANT DELIVERY PUMPS. (Bulletin 46000) Includes construction details, operation information, speeds, capacity and pressure ratings as well as illustrations of custom-built reservoir paks. **Oilgear Co.,** 1567C W. Pierce St., Milwaukee 4, Wis.

COCHRANE TRAY-TYPE DEAERATOR. (Publication 465) Tells how continuous maintenance of perfect heat balance eliminates waste of steam or heat and how more heat can be recovered and returned to the boiler if exhaust steam is used. **Cochrane Corp.,** 17th St. below Allegheny, Philadelphia 32, Pa.

FENWAL PRESENTS THE MINIATURIZED TRIO. (4p. Bulletin MC-124A) Presents all the physical, electrical and performance data required for specifying several types of Thermoswitch controls. Also includes a summary of design and installation factors. **Fenwal, Inc.,** Ashland, Mass.

JENSEN PAN-L-HEAT OVENS PLUS CONVEYORS. (Catalogue) Tells the story of a modern advanced approach to process heating, interspersed with photos showing a variety of applications. **Jensen Specialties, Inc.,** 9331 Freeland Ave., Detroit 28, Mich.

STANDARD CHLORINE VAPORIZER SYSTEM FOR CONVERTING LIQUID CHLORINE TO DRY VAPOR. (Bulletin 132B) Contains illustrated sales copy and table showing dimensions in inches. **Whitlock Mfg. Co.,** 42 South St., Elmwood, W. Hartford 10, Conn.

SEEING ISN'T ALWAYS BELIEVING. (Form 147-2) Provides an overall look at the subject of non-destructive testing and includes many changes which are indicative of the progress that is being made in this field. **Magnaflux Corp.,** 7300 W. Lawrence Ave., Chicago 31, Ill.

THE OLIVER BROWNSTOCK WASHING SYSTEM. (Bulletin 3303) Describes the distinguishing features, operation, components, sizes, adaptations and advantages of this system. Also includes typical flowsheets and photographs. **Dorr-Oliver Inc.,** Barry Pl., Stamford, Conn.

PRICES OF FIBERS

MARKET WOOD PULP

THIRD QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

	Delivered Basis		Varying Freight Allowances†		
	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$82.50/ 90.00	$82.50/ 90.00	§$83.00/ 86.00§	$90.00/ —	§$77.50/ 90.00
Kraft, Blchd.	152.00/155.00	155.00/ —	§155.00/ —		§155.00/ —
Kraft, Blchd. Hdwd.	150.00/ —		§137.50/ —		
Kraft, Semi-bleached	140.00/145.00	135.00/140.00	§137.50/140.00§	*140.00/ —	
Kraft, Unbl.	117.50/125.00	120.00/130.00	†125.00/130.00	125.00/145.00	
Sulphite, Blchd. ..	150.00/ —	150.00/ —	*150.00/ —	*150.00/ —	145.00/147.50†
Sulphite, Unblchd. .	130.00/ —	130.00/ —	†130.50/ —	*130.00/ —	
Sulphite, Unb'l. Gl'sn		129.00/ —	†129.00/ —		
Soda, Blchd.	142.50/145.00	145.00/ —			

‡ F.o.b. Shipping Point. § On Dock Atlantic Ports. * Freight allowed.

NEW YORK RAG MARKET

New Domestic Cotton Cuttings

Delivered Mill Basis
PRICES NOMINAL

	Per 100 lbs.
No. 1 White Shirts	$15.00/$15.50
No. 1 Unblchd. Muslins	17.00/ 17.75
Blchd. & Unblchd. Underwears....	17.00/ 18.00
No. 1 Light Silesias	7.25/ 7.75
No. 1 Light Blue Overalls	8.50/ 9.00
Percales	7.00/ 7.50
No. 1 Light Prints	5.50/ 6.00
Suntan Khakis	6.00/ 6.50
Cottonades	3.50/ 4.00
No. 1 Washables	3.00/ 3.50

Old Domestic Cotton Rags

(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed White	$3.00/$3.50
Cotton Pants & Overalls	2.25/ 2.50
Thirds and Blues, Repacked	1.75/ 2.00
No. 2 Roofing	21.00/22.00

COTTON LINTERS

Memphis Market

F.o.b. Oilmills

	July 10 Per 100 lbs.
Grade 1 n.a.	
2	$9.10/ $7.70
3 } 1st cut—felting	7.00/ 5.80
4	5.25/ 4.20
5	3.75/ 3.05
6	3.00/ 2.75
7	2.75/ —

*Based on 73% cellulose.

Bagging

(Prices to Dealers, F.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny	$5.50/$6.00
Foreign Scrap Burlap	5.50/ 6.00
Heavy Wool Tares	6.50/ —
Foreign Manila Rope	6.25/ 6.50
Domestic Manila Rope	7.75/ 8.25
Domestic No. 1 Sisal Strings	4.25/ 4.50

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point - Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	July 23	July 23	July 23	July 23
No. 1 Mixed Paper	11.00/ —	14.00/ —	10.00/ —	14.00/ —
No. 1 News	15.00/ 16.00	17.00/ —	14.00/ —	14.00/ —
Overissue News (Lg. size)	17.00/ 18.00	17.00/ 19.00	19.00/ —	14.00/ —
Mill Wrappers	17.00/ 20.00	17.00/ —	13.00/ —	14.00/ —
Old Corrugated Containers	24.00/ 25.00	24.00/ 25.00	23.00/ —	19.00/ —
Super Resorted Kraft Paper ...	46.00/ 48.00	45.00/ 50.00	45.00/ —	45.00/ —
New Double Kr. Ld. Corr. Cuts	40.00/ 42.00	45.00/ 47.00	45.00/ —	35.00/ 40.00
(Semi-chem. medium)	45.00/ 52.50	47.00/ 52.50	47.50/ 52.50	— / —
New 100% Kraft Corr. Cuts ...	55.00/ 65.00	55.00/ 65.00	65.00/ —	45.00/ —
New Br. Kraft. Env. Cuts	85.00/ 90.00	80.00/ 90.00	70.00/ —	55.00/ —
New Br. Kr. Bag Waste Prntd.	65.00/ 75.00	65.00/ 70.00	60.00/ —	60.00/ —
New Br. Kr. Bag Waste Unprntd	75.00/ 80.00	75.00/ 85.00	75.00/ —	60.00/ —
No. 1 Groundwood Shvs.	45.00/ —	35.00/ 42.00	24.00/ —	27.00/ 30.00
White Newsblanks	80.00/ —	65.00/ 75.00	55.00/ —	60.00/ —
No. 1 Soft White Shvs.....	75.00/ 80.00	70.00/ 75.00	70.00/ —	— / —
Super Soft Wh. Shvs.....	80.00/ 90.00	80.00/ 85.00	80.00/ —	— / —
Hd. Whit. Shvs.	100.00/105.00	110.00/115.00	105.00/ —	100.00/ —
Hd. Wht. Env. Cuts	120.00/125.00	120.00/130.00	105.00/ —	115.00/ —
Col. Tab. Cards	60.00/ 65.00	65.00/ 70.00	65.00/ —	42.50/ —
Manila Tab. Cards, bales	85.00/ 90.00	85.00/ 95.00	85.00/ —	64.00/ —
No. 1 Col. Ledger	35.00/ 40.00	40.00/ 42.50	50.00/ —	35.00/ —
White Ledger	65.00/ 70.00	65.00/ 70.00	65.00/ —	45.00/ —
Mixed Book & Mag.†	26.00/ 27.00	27.00/ 30.00	17.00/ —	— / —
No. 1 Rep'd. Hvy. Books‡	29.00/ 30.00	31.00/ 33.00	30.00/ —	— / —

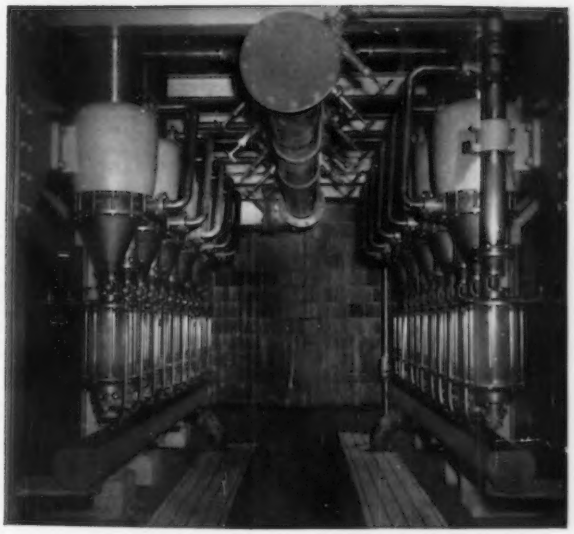
† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood. § Deld.

PRICES OF MATERIALS

Aluminum sulphate:			
cml bags, c.l. wks. .....cwt.	$1.85	/	—
iron-free, c.l. wks. .....cwt.	3.55	/	—
Casein, acid prec.:			
dom. sh. pt. c.l. (30 mesh)...	32.00	/	—
Arg. ex. dock, duty paid.....	22.00	/	23.50
New Zeal., do.	24.00	/	25.00
Caustic soda:			
c.l. wks. solid, 76% .....cwt.	4.10	/	—
flak. & grd. 400-lb. drums, c.l.	4.50	/	—
liquid 50% tanks ...	2.80	/	—
liquid 70% tanks ...	2.90	/	—
China clay:			
dom. air-float, c.l. (Geo. Wks.) .....ton	10.00		
water-washed, lump, filler,..ton	11.00		
coating .....ton	17.60	/	40.00
Imported, ex. ship...short tons	20.00	/	35.00
Chlorine:			
single-unit tanks, works..cwt.	3.05	/	—
multiple unit, 2-5 cars per yr.	3.92	/	5.12
Formaldehyde:			
USP, inh. dms. c.l. wks..lbs.	.0675	/	—
lcl., E. wks. .....lb.	.072	/	.0725
Lime:			
hydrated (bulk, c.l.).....tons	20.21	/	—
Gum rosin:			
K, M, N, drums, c.l. Savan, cwt.	7.89	/	7.91
Rosin size:			
70%, gum & pale grds., tank cars, south, sh. pt. .....cwt.	7.24	/	7.28
Salt cake:			
dom. bulk, 100% anh. wks. ton	28.00	/	—
imp. f.o.b. Saskatchewan...ton	18.00	/	Canadian funds
Soda ash:			
light, 58%, bags, wks.....cwt.	1.80	/	—
bulk .....cwt.	1.50	/	—
Sodium silicate, 40° Be.:			
tank-cars, wks. .....cwt.	1.10	/	—
drums, c.l. wks. .....cwt.	1.45	/	—
(47°) Be. WW.			
tank-cars, wks. .....cwt.	1.75	/	—
drums, c.l. wks. .....cwt.	2.10	/	—
Sodium peroxide:			
dms. c.l. E. of Miss. .....lb.	.186		
l.c.l. (same basis).....lb.	.191	/	.196
Soybean, protein:			
chem. isol., wks. c.l. bags...lb.	.23	/	—
Sulphuric acid:			
60° Be. cbys. c.l. wks. ...cwt.	2.00	/	—
l.c.l. wks. .....cwt.	2.45	/	—
tank-cars, wks. .....ton	18.60	/	—
Sulphur:			
crude, c.l. mines, contract, long ton	26.50	/	—
f.o.b. vessels Gulf.....do.	28.00	/	—
Sulphur dioxide:			
liquid, coml. cyl., wks. ....lb.	.10	/	.12
multi-unit cars, wks. .....lb.	.0535	/	
Starches:			
corn, multiwalls, c.l. prod. plant:			
pearl .....cwt.	6.39	/	—
white, dextrins .....cwt.	7.55	/	7.80
chlorinated .....cwt.	8.15	/	—
potato, Idaho, c.l. wks....cwt.	6.60	/	—
East, fr. all. 50 cents cwt.			
potato, Maine, f.o.b. wks. cwt.	7.75	/	—
Talc:			
c.l. wks., N.Y.....ton	28.00	/	—
c.l. wks., N.Y. .....ton	27.00	/	37.00
Titanium dioxide:			
anstase, c.l. deld. E. bagsNlb.	.24½	/	—
l.c.l. deld. .....lb.	.25½	/	—
rutile, c.l. deld. .....lb.	.26½	/	—
l.c.l. deld. .....lb.	.27½	/	—

DIRTECS

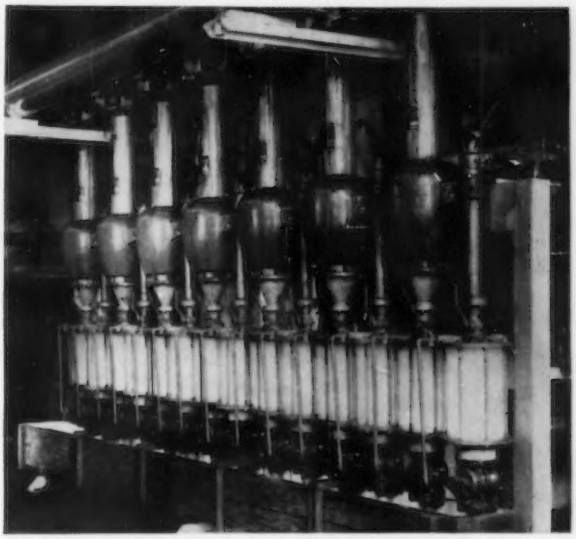
Are Doing A Lot Of Different Dirt Removal Jobs



Battery of King Size Dirtecs removing dirt from southern pine stock. These units have proved outstandingly successful for pulp and board mill applications.

Big *King Size* Dirtecs are taking both the heavy and the light dirt out of pulp and board stocks. They may be equipped with continuous dirt evacuators. Capacity per Dirtec up to 1200 g. p. m.

Regular Size Dirtecs are guarding paper quality and uniformity ahead of the paper machine and protecting the machine wires and roll surfaces against damaging dirt and grit. They are also used in the fresh water supply to keep it free of sand and fine dirt.



Regular size Dirtecs on high grade rag writing stock. These units are used extensively ahead of paper machines, as tailings units for Bird Screens and in fresh water supply lines.

How About Yours?

BIRD MACHINE COMPANY

SOUTH WALPOLE, MASS.

REGIONAL OFFICES: EVANSTON, ILLINOIS
PORTLAND, OREGON • ATLANTA, GEORGIA

Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

your "rolling pipe line"

More than 2600 Olin Mathieson tank cars are in service every day shuttling between a score of production points and our customers to assure dependable delivery of Mathieson Chemicals.

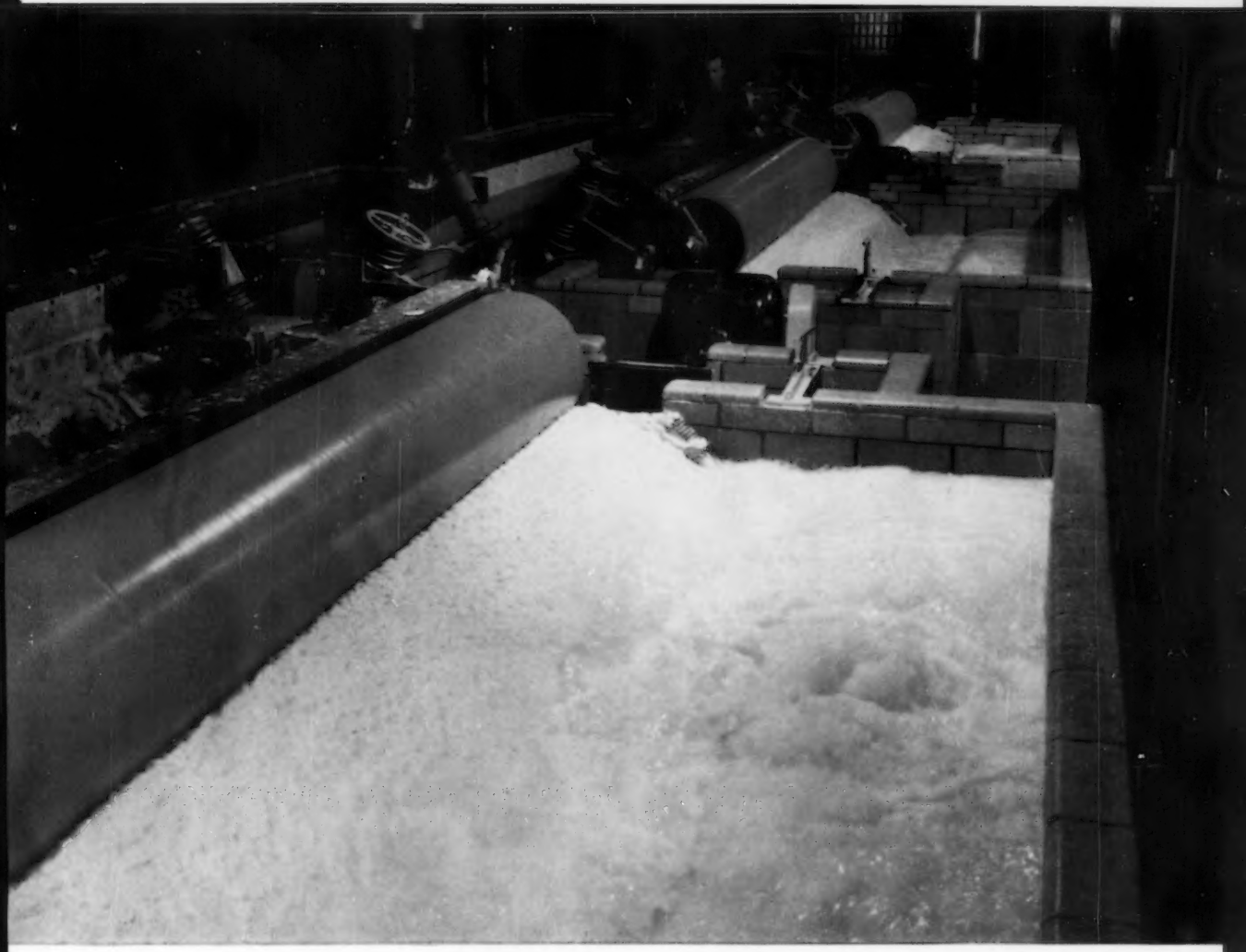
In a sense, they form a "pipe line" connecting major consuming and producing areas. And, they perform the important function of balancing out local shortages and surpluses.

If you're ever caught short of an essential chemical raw material, the flexibility of a multi-plant producer can prove invaluable. Our "pipe lines" carrying caustic, chlorine, ammonia, sulphuric acid, methanol and organics may be the answer to your supply problems. Talk it over with an Olin Mathieson representative soon.

MATHIESON CHEMICALS
OLIN MATHIESON CHEMICAL CORPORATION
INDUSTRIAL CHEMICALS DIVISION • BALTIMORE 3, MD. 3954

MATHIESON

INORGANIC CHEMICALS: Ammonia • Bicarbonate of Soda • Carbon Dioxide • Caustic Potash • Caustic Soda • Chlorine • Hydrazine and Derivatives Hyprochlorite Products • Muriatic Acid • Nitrate of Soda • Nitric Acid • Soda Ash • Sodium Chlorite Products • Sulphate of Alumina • Sulphur (Processed) Sulphuric Acid • ORGANIC CHEMICALS: Ethylene Oxide • Ethylene Glycols • Polyethylene Glycols • Glycol Ether Solvents • Ethylene Dichloride • Dichloroethylether Formaldehyde • Methanol • Sodium Methylate • Hexamine • Ethylene Diamine • Polyamines • Ethanolamines • Trichlorobenzene • Polychlorobenzene • Trichlorophenol



Impco Open Cylinder Deckers at Brown Company

These 48″ x 144″ open cylinder couch roll deckers are handling 450 tons daily of unbleached sulfite pulp.

These units at Berlin are of all type #316 stainless steel, utilizing the original Sherbrooke design of perforated deck construction.

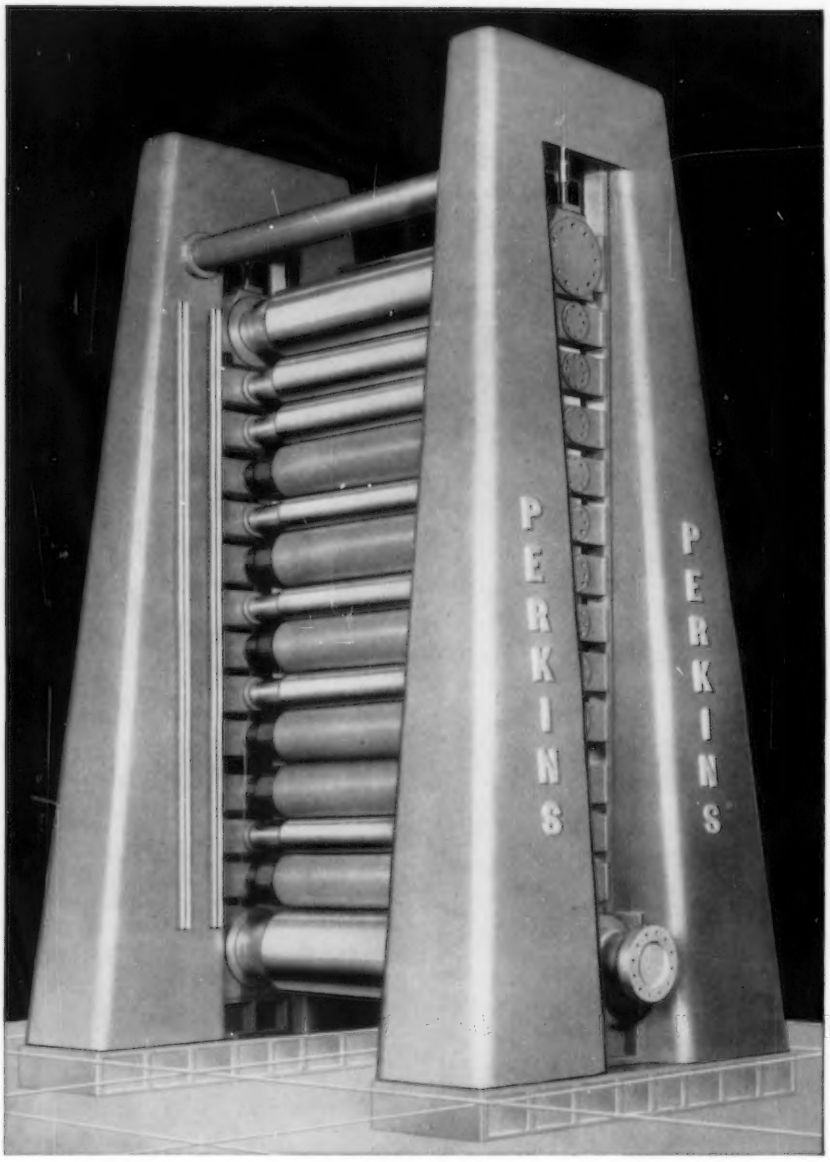
High unit capacity as well as quality pulps are primary demands in Brown's modernization program.

IMPCO®

IMPROVED
MACHINERY INC.
NASHUA, NEW HAMPSHIRE

Sherbrooke Machineries Limited, Sherbrooke, Quebec, manufacture similar equipment in Canada.

This new Perkins achievement is the most forward step in design of Supercalenders in years



Another New Perkins Design Supercalender for the Glassine Industry

Concealed piping within the calender frames for lubrication, hydraulic, steam and air supply.

Openings in lower section of frames for easy access to piping.

Double tee slots on each frame upright for rigid support of fly rolls, platforms, and other members requiring support between the calender frames.

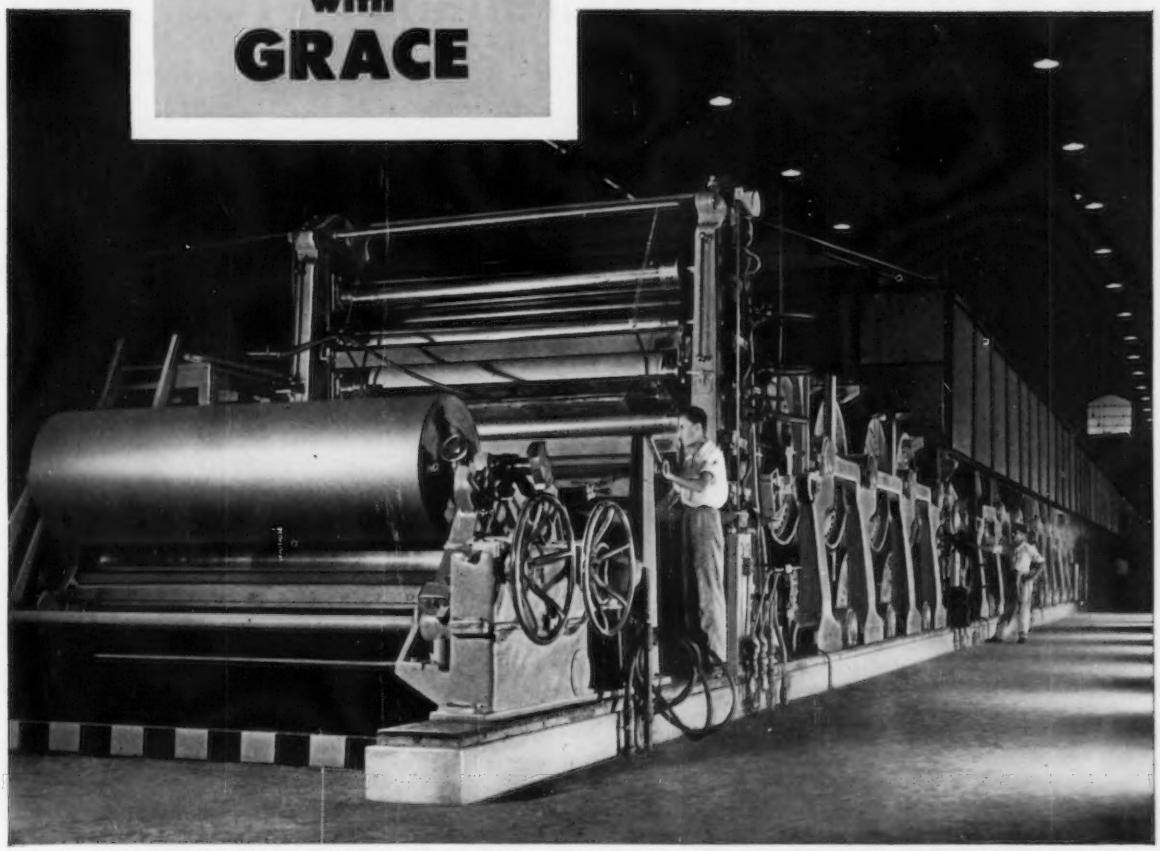
Roll removal unit for easy removal of rolls endwise through the frame gaps.

***Plus*—Perkins superior quality rolls, highly dependable for their performance and long life in any calender.**

B. F. PERKINS & SON, Inc. • HOLYOKE, MASS.

Southern Sales Office • 1609 Liberty Life Bldg. • Charlotte • North Carolina

GROWING with GRACE



WEALTH FROM WASTE . . . *in a matter of minutes*

THE paper made by this machine began as bagasse, the waste from crushed sugar cane.

Pioneered by W. R. Grace & Co., the production of papers and corrugated board from bagasse has given Peru a thriving new industry which utilizes the country's own raw materials and labor. In expanding the capacity of its plant at Paramonga by 50%, Grace will employ its new continuous pulping method to transform bagasse directly into paper pulp within a few minutes after it leaves the sugar mill.

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What a West Coast Mill Does About Its Woodroom Maintenance Problems

Wood handling equipment on the Pacific is drastically different from that used in the East due to the immense size of the logs used. Maintenance problems are therefore quite unique. Here is a report by the largest mill on the Pacific.

Robert Hogan
Assistant Mechanical Superintendent,
Powel River Co., Powel River, B. C.

Webster defines "maintenance" as the upkeep of property, equipment, and so on. This simple statement may cover the basic intentions of everyone involved in "Woodroom Maintenance", but the magnitude to which this task has developed can only be realized by a glimpse at the problems confronting those concerned with this age-old industrial headache.

To get down to specific cases, let's take a look at the main woodroom maintenance problems at Powell River, which are typical of others on the Pacific Coast in similar industries. Our experience at Powell River dates back to 1912, when our first paper machine began its production of newsprint. This event not only caused the woodroom wheels to turn, but also precipitated the myriad of revisions, replacements, procedures and schedules that have made up the scheme of maintenance ever since.

Today the Powell River wood mill processes an average of four million board feet, British Columbia Log Scale a week, and with the startup of a ninth paper machine early next year, this weekly figure will approach five million feet. To cope with such quantities of wood, the present woodmill comprises the following: two hydraulic barkers, a whole log chipper, re-chipper, chip screens; a sawmill consisting of two carriages, two bandmills, two edgers, and two slashers; two block loading machines, and associated refuse systems.

Because the operation fundamentally involves movement of large logs and their handling by machinery whose motions are directed by humans (who, in turn, obey impulses as well as well-defined procedures), this machinery must sometimes withstand abuse far beyond its ultimate endurance limits, and failures will occasionaly occur. Couple this fact with basic weaknesses in design and continuous round-the-clock operation, and the problem of keeping this machinery in working order becomes very real.

Two Basic Considerations

Broadly speaking, our scheme of maintenance today is made up of two basic considerations. The first is that of a normal, scheduled, preventive routine which embodies all the regular aspects of keeping machinery running, but is based strictly on simplicity. We have found that harsh, complex rules and regulations enveloped in reams of paper work will only hamper the work of the mechanic on the job. The second consideration is one which we might call "improvements and betterments". As such it is considerably more involved than our first consideration, since planning becomes longer ranged, problems become inter-related with several departments, and cost becomes a dominating criterion.

Record System

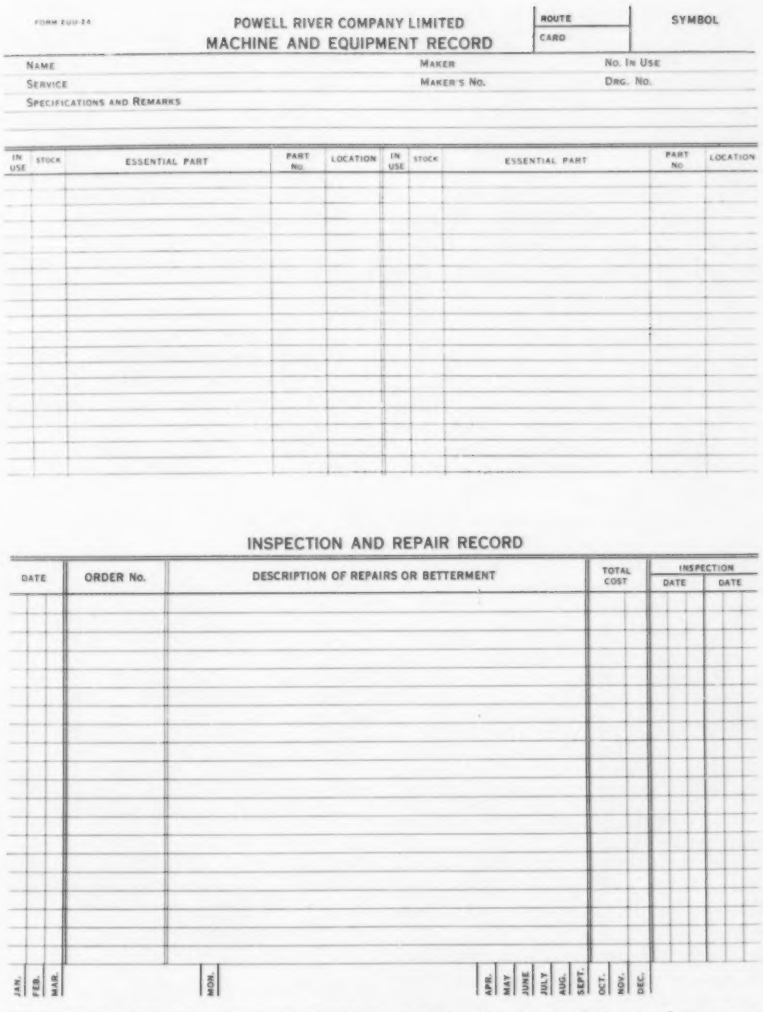
Let us examine these two considerations in greater detail. With regard to what we call normal maintenance—and keeping in mind the theme of simplicity —we have set up, first of all, a system to identify all equipment, whether it be electrical, steam, mechanical or instrument. It involves a list of symbols in which the actual part or unit title is associated with the symbol. This list is bound in book form and distributed to everyone concerned. The extent to which units of machinery should be broken down for the symbol system of identification is perhaps questionable, but in general we have adopted the following boundaries. Wherever a prime mover is involved in a drive, such as a log transfer deck or a bandmill or edger, then this becomes a unit. Sections involving cylinder functions, such as log stops and loaders, where motion is created, also become a unit in the symbol scheme. However, because in many instances such decisions are dictated by the individual circumstances and the main point is that each and every piece of equipment should be quickly and easily identified, we have elected also to paint or stamp the actual symbol number in bold color on each piece of equipment. In some cases this poses a bit of a problem, but the ultimate saving in time and the inherent aid to safety given by proper identification of

The Author

Robert Hogan
Asst. Mechanical Supt.
Powell River Co.

these units certainly justifies this measure.

Along with the symbol system, an office record is kept of all units in the form of a "Machine and Equipment Record" card. Constituting the heart of our preventative maintenance program, these cards serve a triple function. Their basic function is to record all pertinent data associated with the unit piece of machinery, giving such specifications that will allow for quick and accurate ordering of spare parts. There is room on the face of the card to list the essential parts of the unit, their part numbers, the number that are in use, the number that are stocked as spares, and the location where these parts may be found. On the reverse side of the card a record is kept of the actual work done on the unit, the date this work was performed, the charge number to which the costs were applied, and the actual costs occasioned by the repairs. The third function of the card is to suggest inspections considered essential for this particular unit of machinery. The frequency of such inspections is determined initially in relation to the type of machinery, the number of hours operated daily, the type of operation, the location, etc. In many cases, however, the inspection dates and their frequency have to be changed to coincide with conditions as they develop. Once the inspection date has been arrived at, a small metal flag is attached to the card at the position of the month, and in some cases the day on which this inspection is to take place. This allows the office staff to quickly pick out the card and prepare an inspection list, which is promptly forwarded to the head mechanic on the job.



FORM ZUU-24

POWELL RIVER COMPANY LIMITED
MACHINE AND EQUIPMENT RECORD

ROUTE
CARD
SYMBOL

NAME
MAKER
No. IN USE
SERVICE
MAKER'S No.
DRG. No.
SPECIFICATIONS AND REMARKS

IN USE	STOCK	ESSENTIAL PART	PART No.	LOCATION	IN USE	STOCK	ESSENTIAL PART	PART No.	LOCATION

INSPECTION AND REPAIR RECORD

DATE	ORDER No.	DESCRIPTION OF REPAIRS OR BETTERMENT	TOTAL COST	INSPECTION DATE	INSPECTION DATE

JAN. FEB. MAR. MON. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.

MACHINE AND EQUIPMENT RECORD CARD. The front of the card is snown at the top, the rear is below.

Inspection

As might be expected, we have given the title of "inspector" to the head mechanic in each department, and it is his prime function to carry out these inspections, note the condition of each unit on the list and the date at which this condition was observed, and make any other remarks he may feel are necessary. He then initials the inspection sheet, which is returned to the main office for scrutiny and filing.

Based on the observations of the inspections thus carried out and reports given to the inspector by operating department personnel, as well as on daily reports left him by service department shift workers who patrol and repair throughout the 24-hour operating day, the inspector prepares a shutdown repair sheet the day prior to the actual shutdown. This sheet is carefully gone over by the service and operating department heads, and once the exact hours for the shutdown have been established, the inspector goes about his work of preparing the material, rigging and a list of men necessary to carry out the work. Naturally, on these repair days a certain amount of the actual inspection work must be carried out, as it is only possible to open certain reduction gears, bearings or pumps when the machinery is idle.

As for the actual repair days, we have had to institute a great many mechanical aids to handling equipment. In most cases it has been found that rigging and handling time constitutes approximately 80 percent of the job time. Electric chain blocks, I-beams, trolleys, lift trucks, air winches, air hoists and many other such means have speeded up the work, not only on scheduled shutdowns, but also during breakdowns.

Improvements and Betterments

Now let us turn to the second consideration, which we have termed "improvements and betterments." It may well contain the secret to long-range, sound and efficient maintenance. With-

"Because West Coast woodrooms involve movement of large logs subject to control by humans who are not infallible, equipment must sometimes stand abuse far beyond its endurance limits."

in it lies the challenge that creates interest where otherwise monotony would prevail. Unlike our first consideration, which was based on a note of simplicity, our thinking this time is: "there will be no progress or anything gained unless a change is made".

Chipper Rebuilt

Our entire pulp and paper mill depends upon one whole-log chipper for its production of chips. About two years after its startup it became apparent that major changes would have to be made in the chipper's design in order to give some degree of security to this vital operation. One main shaft had already broken adjacent to the disc and the spare shaft could not be expected to last longer than the first. The feed spout could no longer be held secure to the base, and since the base was cast iron, welding of these sections was almost impossible. The anvil and spout design indicated that improvement could be made to eliminate log bouncing during the chipping operation. The knife holders and knife setting was complicated, time consuming, and usually resulted in many inaccurate settings and greater than normal sawdust percentages. Both main bearings gave considerable trouble, mostly because their housings were bolted to the main base and could not possibly be kept secure. Although these problems did not develop all at once, it became forcibly apparent to us that "lost time" due to these faults and failures would soon impede the ever-increasing production rates.

Today we can record virtually no "lost time" due to these faults and failures would soon impede the ever-increasing production rates.

Today we can record virtually no lost time on our chip production, nor was any production of paper or market pulp lost during the changeover which brought about these improvements. Without going into details of these changes, except to say they were planned and scheduled to fit in with operating conditions, the following will briefly indicate how the improvement was achieved. A new main shaft was designed, with considerable care as to the selection of steel, the disc and bearing fits, and with a greatly increased diameter and corner radius at the critical sections. This shaft has now operated continuously for five years, and recent reflectoscope checks have indicated no sign of a failure developing.

A complete steel base was fabricated with the main bearing housing integral with the base, and the entire assembly carefully annealed and machined. This particular changeover required close scheduling for its installation, but the results have been most satisfactory. A combination anvil and spout with a V-cross section was developed and installed to eliminate log bouncing almost entirely. A complete reversal of the knife position and a simplified knife holder was developed, reducing by a very large percentage the sawdust which had previously been wasted to hog fuel. The knife holder modification also allowed knife changing time to be cut approximately in half, to further increase the chipper's output. Special jigs were developed to facilitate stacking of the knives for grinding, which resulted in reduced costs in that direction also. The main antifriction thrust bearing, which had failed without warning on several ocasions, came in for considerable study. It was found that under the particular method of mounting the bearing on a tapered sleeve and the continuous hammering of logs on the disc drove the bearing up onto the sleeve. This reduced the roller clearance beyond zero, causing actual interference. Once a proper locking sleeve was installed to prevent this from taking place and the greased lubricant changed over to a circulating oil system, this type of failure was eliminated.

Almost every section of the woodmill has received similar treatment, with equally gratifying results. And almost without exception the changes made were governed by ordinary mechanical laws and comon sense. Repeatedly we had to correct such errors in original design as sharp radius shoulders, improper bearing clearances, inadequate lubrication, faulty application of seals and packings, and many more.

Metal Fat'gue Problem

Time and again we found that wherever extreme shock loading is evident —and our Pacific Coast woodrooms are a perfect example of this — metals should be selected on the basis of high resistance to fatigue, and great care should be given to their heat treatment and annealing. Our experience has also been that the use of such work-hardening properties as possessed by manganese alloys cannot be exploited too fully.

Lubrication

With regard to overall lubrication problems, we have found that wherever possible the use of water lubricated type bearings has resulted in many cost reductions, and in general the hydraulic barker is a wide open field for this application. The use of anti-friction bearings should be encouraged wherever possible, and initial costs of installation should not obscure the benefits derived from the well-designed, properly lubricated bearing housings available today. Woodmills are notorious for the number and variety of bearings employed, and considerable lubrication time can be saved and a more positive and economical use of the lubricant obtained if mechanical force-feed lubricators are taken advantage of.

Spare Parts

No discussion of maintenance is, of course, complete without mention of spare parts. We consider them, as most people probably do, tantamount to an insurance policy. We have heard the laments of the uninsured, as well as the complaints of the insurance-poor. We realize it isn't always easy to maintain a happy medium, but we firmly believe it is one of the main duties of the maintenance personnel to keep their spare part inventory low without jeopardizing the security of the mill operation.

As is the case with many mills which are remotely located from their basic suppliers, we at Powell River are quite often obliged to carry spare parts which would be unnecessary in many other localities. However, there are two fundamental means whereby the inventory of these parts can be minimized, and these two means should be pursued relentlessly. In the first place, there is a natural tendency on everyone's part to put aside, or attempt to designate certain parts strictly as spares for their own particular equipment. This inevitably leads to a duplication of parts and consequent overstocking. In an attempt to avert this pitfall, we have set up our entire stock of spare parts using the symbol system, and by extensive use of cross references and minimum and maximum levels, based on actual and predicted usages, we have managed to keep the ratio of spare parts to mill assets comparatively low.

The second means of minimizing inventories is by standardization of parts. In general this can most effectively be done in the planning stages of new equipment, but it can also be carried out whenever replacements and changes are contemplated.

After this brief glance at maintenance as we know it in Pacific Coast woodrooms, we might be even more appreciative of the word's derivation than of Mr. Webster's definition. Derived from the happy combination of two French words—main (hand) and tenir (to hold) —maintenance literally means "to hold by the hand". This could be interpreted to mean that by exercising proper maintenance you will hold things under control in your hands. It might also be stretched to mean that proper maintenance in your plant can continue to give you the upper hand. Viewed in this light, these are business aspects of maintenance in which every man on your company's payroll, from the president down, should be vitally interested.

Woodpulp PLUS

Our goal is to obtain maximum utility and value from each harvested tree. Diversity of processing is the key to whole-crop wood utilization. The plants of Weyerhaeuser Timber Company convert the tree's raw materials into numerous indispensable products.

Woodpulp is one of the chief products from our forests—uniformly high-quality pulp is supplied on a reliable long-term basis to all of the woodpulp-using industries from the mills of Weyerhaeuser Timber Company.

WEYERHAEUSER

PULP DIVISION

Our Industry Still Expanding At Accelerated Rate

John C. W. Evans
Editor, Paper Trade JOURNAL

Here are 18 more projects to be added to the 100 listed in June 18th issue of **Paper Trade JOURNAL.** All but three of these are quite definite and will undoubtedly be carried to completion. A number of possible difficulties may impede the construction of the remaining three. This is certainly a large number of projects to be accumulated in just six weeks and indicates that there is no slow down in expansion at this time.

These new projects do not however call for extensive change in the capacity figures for various grades of pulp, paper and board that we also published in our June 18th issue, since the editors were aware of a number of these projects on a confidential basis and allowed for them in the tables but did not feel free to list them then. The remaining definite projects will not have a great overall effect on the figures. The editors believe that the capacity tables "as published" are still reasonably accurate, with the exception of the building board figures for 1957 which we now think are too low, and give a fair picture of new production coming in up to Jan. 1st, 1958. We did not forecast beyond this date because there is time for too many changes and new mills to be decided on and built between now and mid 1958.

COMPANY	LOCATION	PROJECT
Arizona Pulp & Paper Co.*	Flagstaff, Ariz.	New name of former Coconino Pulp and Paper Co. New owners are talking of expansion, including 300 tons per day of newsprint.
Brooks Scanlon Lumber Co.*	Bend, Ore.	Engineering studies are being made near here for a 200 ton per day pulp (and paper) mill.
Champion Paper and Fibre Co.	Canton, S. C.	A $20 million expansion project includes a new 240″ fourdrinier to make coated papers. Plans include improvements at other divisions including additional recovery equipment at Pasadena, Texas.
Charmin Paper Co.	Cheboygan, Mich.	Rehabilitation and expansion of production facilities of recently acquired idle mill of Paper Corporation of America. Will produce tissue grades similar to those produced at Charmin's, Green Bay plant. Production to begin early in 1957.
Coconino Pulp and Paper Co.	Flagstaff, Ariz.	Re-incorporated under name of Arizona Pulp and Paper Co., which see for expansion plans.
Crown Zellerbach Corp.	Clastrop, Ore.	C. Z. is investigating sites for a 400 ton per day pulp and paper mill. Most considered site seems to be near Clastrop, Ore.
Crystal Tissue Co.	Middletown, Ohio	New tissue machine to increase capacity by 25 per cent.

* No definite plans made yet for this project.

Company	Location	Project
Finch Pruyn & Co.	Glens Falls, N. Y.	New $3.5 million semi-chemical pulp mill of 70 tons per day capacity. To be in production mid 1957.
Hudson Pulp & Paper Co.	Palatka, Fla.	New $25 million newsprint mill of 300 tons per day capacity adjoining company's existing mills. Probable start up mid or late 1958.
James River Pulp Co.	Columbia, Georgia	New owners, Cauthorne Paper Co., are expanding production, with further expansion under consideration.
Ketchikan Pulp Co.	Ketchikan, Alaska	Four million dollar expansion project will increase pulp production by ten percent or about forty tons per day.
Kimberly-Clark Corp.	Kimberley, Wis.	New 180″ fourdrinier machine to make coated printing papers.
Kimberly-Clark Corp.	New Milford, Conn.	New paper mill and converting plant will produce facial tissues, table napkins, and toilet tissues to start-up Spring of '58.
Murphy Corp.*	Pine Bluff, Ark.	This company which is engaged in oil and gas expansion and development, operates lumber and other enterprises through a subsidiary Delta Farm and Lumber Co., is exploring possibilities of building a pulp and paper mill in Pine Bluff, Ark. Company headquarters are at El Dorado, Ark.
Nekoosa-Edwards Paper Co.	Port Edwards, Wis.	$13.5 million expansion program includes new pulp and bleaching facilities as well as a new 145″ fourdrinier. Completion late 1958.
New York and Pennsylvania Co.	Lock Haven, Pa.	New 108″ fourdrinier to make 50 tons per day offset papers. To be in production early 1958.
St. Regis Paper Co.	Pensacola, Fla.	$1.5 million expenditure to produce 300 tons per week of bleached hardwood kraft pulp.
Southland Paper Mills Inc.	Lufkin, Texas	A new newsprint machine (in addition to the one starting up this summer) to produce 300 tons per day. Probable start up early in 1958.
Southwest Lumber Mills Inc.*	Snowflake, Ariz.	Company is investigating construction of a $35-40 million pulp and paper mill.
Weyerhaeuser Timber Co.	Longview, Wash.	Expand kraft pulp mill by 100 tons per day of bleached, for production of food board there. Completion early '57. This is a correction of the listing in our June 18th issue attributing the increase in pulp production to the company's Everett mill.

*No definite plans made yet for this project

First Complete Description of East Texas Mill

First market pulp and fourdrinier board mill in Texas is that of East Texas Pulp and Paper Co. at Evadale, Texas, located 24 miles north of Beaumont. This is the first complete description of the mill published.

Eastex (trade name adopted by East Texas) is a wholly owned subsidiary of Time Inc., publishers of Time, Life Fortune, House & Home, Architectural Forum, and Sports Illustrated magazines.

In a special interview last week executives of Time, Inc. in New York, told *Paper Trade* JOURNAL that they have no plans for the conversion of present East Texas products to book paper grades, of which they purchase enormous quantities each year. The move, in which the large publishing company purchased the balance of the outstanding East Texas shares from Houston Oil Company, was termed solely "A business investment."

The mill was jointly owned by the Houston Oil Company and Time Inc. when it began operations in December 1954. On June 6, 1956 Time Inc. became sole owner of Eastex, taking title to the mill and 660,000 acres of timberlands belonging to the Southwestern Settlement and Development Corporation. Southwestern, previously owned outright by Houston Oil, now operates as the woods division of the pulp and paper company.

The mill of East Texas Pulp and Paper Company was designed and built under the direction of Howard A. Simons, consulting engineer, who was guided by the principals of East Texas.

Production capacity of the Eastex mill is 350 tons a day. The mill produces chlorine dioxide bleached softwood and hardwood pulp for the domestic and export markets; and bleached fourdrinier board and heavyweight bleached paper used for manufacturing folding cartons, drinking cups, milk cartons, tags, file folders and other bleached board specialties.

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Pulpwood Resources

The Eastex plant uses some 240,000 cords of pine and hardwood annually. Collection and delivery of the five-foot pulpwood logs is done by independent wood contractors. A substantial volume of wood is obtained from individual tree farmers and land holders. In addition, a major quantity of chips from sawmill waste-wood are purchased, and the balance of the wood requirements come from Southwestern Settlement and Development Company. As a prime reserve for the supply of Eastex Mill's wood requirements, Southwestern Settlement and Development Company's 660,000 acres of timberlands.

Wood Handling and Chipping

In order to meet mill demand it is necessary to process 600 cords of wood per day. The furnish is mainly southern pine averaging 6″ to 8″ in diameter and approximately 5′-0″ long. However, in design, the possibility of future hardwood handling had to be taken into account.

The wood is brought into the plant by rail and truck, and the wood yard has a storage capacity of 20,000 cords "strawpiled." The wood is stored in two piles each 750 ft. long by 80 ft. wide, running on either side of a centrally located flume. The whole wood yard is paved with blacktop. The railway line bringing wood to the mill runs immediately alongside the flume. This position enables the operators to unload directly to the flume, which conveys the wood to the barking drums, or to the store in either stockpile, as desired. All storing and reclaiming is carried out by means of crawler cranes and four-tine grapples.

Flume

The flume, built of steel lined concrete, is 750 ft. long by 3 ft. wide, and the water flows approximately 3 ft. deep at a velocity of 5 ft./sec. Each side of the flume has a sloping apron 4 ft. wide built as an integral part of the flume. This is arranged so that a grapple load of wood when dropped will either fall directly into the flume, or hit the aprons and then roll into the flume. At the discharge end the wood drops onto a conveyor which carries it to the barking drums. The loose bark and water pass through slotted holes in the conveyor bottom to a settling basin below. Here its velocity is reduced to 1 ft./sec., so that grit and heavy waste will settle out. This material is removed by two Rex type heavy drag grit collectors, which deposit it onto a chain conveyor for disposal. The bark and water passing through the settling basin then reach two vertical rotating circular coarse screens, where the bark is trapped. This bark discharges to a conveyor and eventually reaches the conveyor taking refuse to the hog. The water which has passed through settling basins and coarse screens now enters a pump chamber where it is recirculated to the head end of the flume by means of two vertical pumps each of 10,000 gals./min. capacity. Allowance has been made for a continuous supply of fresh water to be brought into the recirculating system, whilst a like quantity of dirty water is pumped away to sewer.

Log Conveyors

The conveyor to the drum barkers is built of heavy steel plate and structural members, and employs Esco manganese coil link chain with alloyed steel flights as the conveying medium. The other log conveyors in the mill are similar. Dropping over the head end of the conveyor the logs hit a splash chute, which divides the flow equally to the two barkers. These are 12 ft. x 45 ft. drums of the chain suspended type and were supplied by Fibre Making Processes. The barking is done dry, and at a rate of 20 cords/hr. The dark drops through the drums to chain conveyors under, which in turn discharge to a conveyor to the hog.

On leaving the drums the logs drop into a two foot wide chain conveyor, which is arranged in such a way that the logs must lie lengthwise in the conveyor trough. From here they are transferred to a spiked rollcase. This is made up of twelve 10″ diameter spiked rolls divided up into four sections of three rolls. Each successive section of rolls is driven faster than the one preceeding it, so that as the logs are passed into the rollcase they will be pulled out of the bunches in which they often arrive, and give a more steady and even flow to the wood. A second important function of the rollcase is to straighten out and speed up the logs, so that when they are thrown from the end roll onto a takeaway conveyor, they will lie crosswise on the conveyor. This short section of conveyor, made up of a number of camel back chains, discharges the logs to a 60″ wide sorting belt conveyor. Thus, a steady uniform flow of logs side by side crosswise on the sorting belt is obtained.

Sorting

Because the wood is lying across the conveyor, its speed is only 50 ft./min. to handle over 40 cords/hr. The wood is easily examined for bark, and if to be rejected for rebarking can be pulled off the conveyor with a minimum of effort. Two men handle the sorting with ease. The sorting belt is set about two feet above the operating floor for the best working height, and rejected wood is dropped through holes in the floor on each side of the belt. This wood is received by the first of two chain conveyors, of the type already described. The second conveyor runs at right angles to the first and drops the reject wood into the conveyor to barkers for rebarking. The sorting deck structure is of steel with wooden flooring, hardwood being used in areas likely to receive punishment by logs, and the whole is roofed to protect the workers from the elements.

At the end of the sorting conveyor the logs have a short drop on to a flat 24″ belt conveyor to the chipper. The sides are skirted along its entire length to retain the wood, and the speed of the conveyor is 250 ft./min. Therefore, since the sorting belt is running at 50 ft./min., and the log length is 5 ft., we obtain in effect, a continuous stream of wood one piece behind the other going to the chipper. This makes a chipper operator unnecessary.

Chipping

The chipper is a D. J. Murray 102″, 10 knife machine, with a 700 h.p., 327 r.p.m., 300 per cent pull out torque syn-

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George Wright
Asst. Woods Supt.

chronous motor, and it is arranged for overhead discharge. The chips are blown by the chipper to the chip screen building immediately alongside. The chips are discharged through a cyclone to a flight conveyor which distributes them to a surge bin over the three chip screens. The bin has a total capacity of 15 units. The screens are of the Rotex type, and each has a capacity of 20 units/hr. They are fed by Link Belt rotary plate feeders attached to the bottom of the chip surge bin. Oversize material is conveyed to a 36" Carthage rechipper, which blows the resultant chips to a cyclone located over one of the screens. The fines are discharged to a belt conveyor taking hog fuel to the boiler house. Accepted chips are conveyed to the chip silos by means of a 30" 45 degree troughed belt.

The chip screen building is of steel and concrete and, besides the screens and rechipper, the chipper, hog and electrical switch room for all machinery in the wood yard area are housed under the one roof.

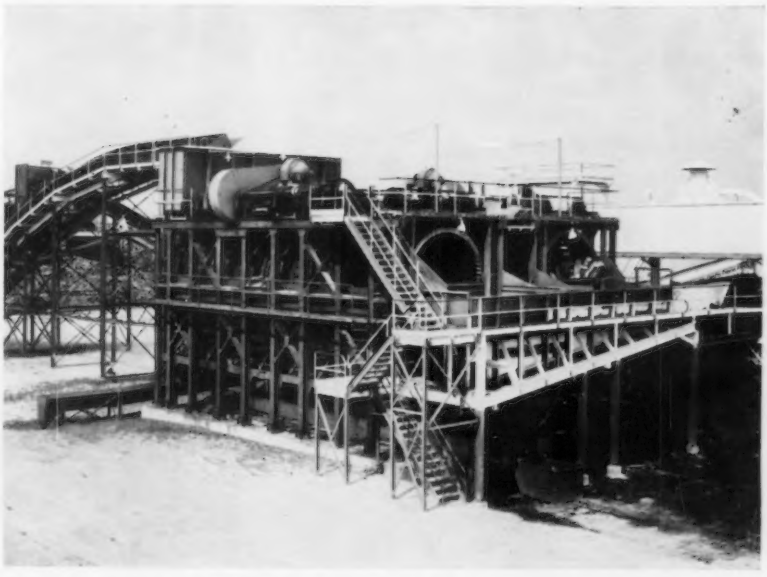
All belt conveyor rollers in the plant were supplied by Hewitt Robbins, and the belting by Goodyear Rubber Co.

After leaving the chip screen building the chips are carried to a 42" flat belt conveyor located over the top of the chip silos and plows are used to direct the chips into the selected bin. These silos are three in number, and each will hold 250 units. Each bin has a steel cone at the bottom reducing the diameter to 12 ft. Under each opening is located a Link Belt rotary plate feeder, capable of feeding at a rate of 140 units/hr. to the digesters. The conveyors to the digesters are three in number. The first carries chips from the feeders to the second conveyor, which is inclined, to take the chips to the top of the digester house. Both of these are 42"-45 degree troughed belts and are housed in galleries as described earlier. In the second conveyor is mounted a Transweigh Beltmeter, which weighs and measures the chips electrically. The second conveyor transfers to a 48"-45 degree troughed belt, which runs over the top of the digesters, which are filled by means of a motor propelled tripper.

Handling Purchased Chips

Incorporated into the chip handling system is an arrangement for receiving screened chips from outside sources brought in by trucks. It is estimated that this will amount to about 150 units of chips per day.

A steel structure which carries a crane overhead allows big trailers to be backed under the crane, which is then hooked onto the front end of the trailer and lifts it, thus allowing the chips to escape from the back end of the trailer into a large hopper. A travelling chain in the bin bottom feeds the chips at the rate of 30 units/hr. to a Fuller Co. chip blowing unit. A 14" pipe carries the chips 450 ft. to the chip silo, some 70 ft. above the ground. The blower is a Roots Connersville type RCHD machine, driven by 150 h.p. 1200 r.p.m. motor.



TWO FMP BARKING DRUMS, 12 x 45, handle all logs to the mill.

Refuse Wood

Going back to the refuse system, it was mentioned that the two bark conveyors under the barkers transfer into another conveyor going up to the hog. All three of these conveyors use mild steel coil link chain and alloy steel flights. Just ahead of the hog is a short section of 30" belt conveyor onto which

ONE 102 INCH TEN KNIFE CHIPPER produces all the chips.

COVERS OF THE FOUR DIGESTERS are visible in this view of the operating floor.

the chain conveyor discharges. Using a belt here enables us to mount an electro magnetic metal detector for protection of the hog. The hog itself is a Gruendler Hummer hog model number 3XE, and is driven by a 150 h.p. 1200 r.p.m. motor. For compactness the hog is located at the end of the chip screen building, and the 30" belt conveyor taking the hogged waste to the boiler house is the same conveyor which receives the fines from the chip screens. This conveyor transfers to a second inclined belt which takes the fuel to the hog fuel feeder bin at the boilers. A flop gate at the transfer between these two conveyors enables the operators to drop the fuel to the ground instead of to the second conveyor, in the event of a stoppage in the boiler feed. The hog fuel feeder is a live bottom bin, with an adjustable gate, and a variable speed drive, so that the rate of feed to the boiler can be controlled.

RECOVERY SYSTEM equipment is shown at the right with the power plant at the left.

Cooking, Washing and Screening

Pulping operations are carried on in a re-inforced concrete structure incorporating cooking brown stock washing, bleaching and screening operations into a single compact unit. The bleached washers, brown stock washers and digester control stations are located on a common floor at the top elevation of the group with a single light partition between the digester operating section and the washers so as to prevent dust from the digester filling cycle contaminating the washed pulp.

Digesters

The four 4,800 cubic feet digesters were supplied by Chicago Bridge and Iron Company and are 11′ 6″ I.D. by 54′ overall height. The digesters were fabricated from A-285 Grade B firebox steel with 2″ thick shell and bottom cone and a 2″ thick ellipsoidal top. The digesters are equipped with Yarway blow off valves.

The circulating and indirect heating systems were supplied by the Electric Steel Foundry Co. of Portland and are of all stainless steel construction. The heaters are of two-pass construction with expansion bellows in the shells to compensate for differential thermal expansion between the tubes and other parts. There are approximately 28 strainer sections per digester completely encircling the internal circumference of the digester approximately 1/3 to 1/2 way up the cylindrical portion of the digester. Recirculated liquor is introduced at both top and bottom of the digester and withdrawn at the center. The digester piping is so designed that cooking may be done either directly or indirectly.

Chips are fed into the digester through a conveyor belt mounted on a floor immediately above the digester operating level. Chips are transferred from this conveyor into the digesters by means of a motor operated tripper supplied by the Chain Belt Co. Hot vapors coming from the digesters during the filling operation are removed from the building by means of a Ross Engineering exhaust system which automatically draws air from the digester which the tripper is discharging into.

Both black and white liquor are fed to the digesters through two 13,000 gallon measuring tanks located on the roof of the digester building. The system also allows knots and flat screen rejects to be pumped back to the digester. Before being released to the atmosphere, relief gases from the digester pass through a turpentine recovery system. The resulting turpentine is sold as a by-product of the mill. Stock from

the digesters is discharged into a blow tank approximately 26′ in diameter and 63′ high. Gases from the blow tank pass through a heat recovery system supplied by the Foster Wheeler Corp. The heated contaminated water is pumped through two indirect tubular heat exchangers which heat fresh water to be used in the stock washing operations.

The blow tank is equipped with a vertical agitator in its conical bottom and weak black liquor from the brown stock washing system is used to dilute the stock for pumping to three Jonsson Knotters located on the operating floor immediately ahead of the brown stock washers.

Washing

The Jonsson screens are equipped with stainless steel plates with 3/8″ diameter perforation while the vat is of plain steel. The knotters are mounted on korfund vibration dampers. Rejected knots flow by gravity into a 13,000 gallon knot storage tank located in the basement. This knot tank also holds brown stock flat screen tailings which are passed over a drainer conveyor for thickening. As previously mentioned, these knots and tailings are reintroduced into the digester during the liquor filling cycle. Stock from the Knotters flows by gravity into a line of Impco brown stock washers consisting of three 9′ 6″ diameter 16′ face molds with submerged type intermediate re-pulpers. The washer vats are steel floor mounted type. The washers are equipped with a Reliance variable speed d.c. drive. The brown stock washers and knotters are covered by a common hood supplied by Ross Engineering. The washers are countercurrent flow with the filtrate from each washer discharging into three seal tanks. These filtrate seal tanks are approximately 200,000 gallons working volume. Foam from the filtrate is transferred to a 20′ diameter by 45′ high foam tank equipped with a mechanical foam breaker supplied by Impco.

Liquor Recovery

Liquor recovered from the foam tank is re-injected into the first stage filtrate tank. Liquor from the first stage filtrate tank is pumped into two 190,000 weak black liquor storage tanks. Liquor from the first stage filtrate is also pumped directly to the black liquor measuring tank. The brown stock washers discharge is equipped with a shredder conveyor combination which discharges the washed brown stock to a flat rubber conveyor belt which transports stock to two 35 ton tile high-density storage tanks located inside of the building. These high-density storage tanks are equipped with Kamyr tangential agitators supplied by Sandy Hill Iron and Brass Works. Stock from the high-density storages is pumped to a blending tank 38′ in diameter and 30′ high.

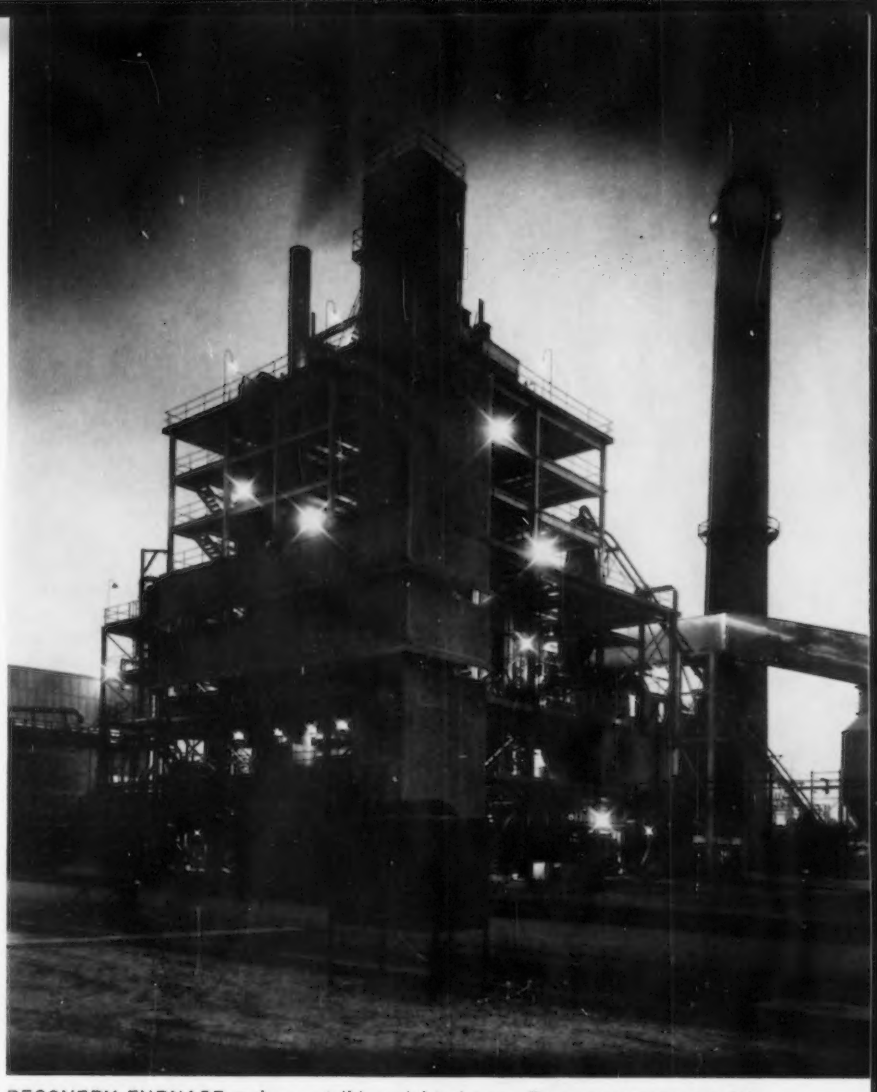
The blending tank is equipped with a Bingham two-stage vertical agitator.

Screening

The blended stock is pumped to eight rows of cypress vat flat screens manufactured by Impco. There are three flat screens in each row. The flat screens are arranged with four rows as primary screening, three rows as secondary screening and one row for tailings. The tailing screen is equipped with a half length bronze fitted scrapper integrally driven. Tailings are discharged into a tile lined concrete tailings chest until they can be pumped back to the knot tank. The Tailings Chest is equipped with a Shartle horizontal propeller type agitator.

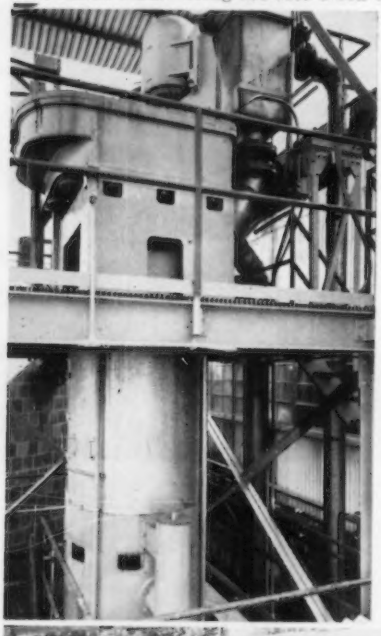
Accepted stock passes through cypress flumes to a 9′ 6″ diameter by 16′ wide face steel rotary vacuum type valveless Impco decker, used as a decker for thickening the stock to approximately 4 per cent consistency. The stock is washed with fresh water on this decker in order to remove as much liquor as possible before going to the bleach plant. The thickened stock from the decker discharges directly into two concrete tile proximately ten tons of stock. The decker chests are also equipped with Shartle horizontal propeller type agitators.

White water from the decker discharges into a concrete tile lined white water chest. Tile lining work for the high-density storage and all the concrete chests in the screen building was installed by Chemical Linings.



RECOVERY FURNACE makes a striking night picture. Recovery system consists of a Goslin-Birmingham sextuple effect evaporator, a Combustion Engineering Corp. recovery furnace and a Koppers-Elex electrostatic precipitator.

NODULAR PULP being fed into truck through holes in trailer roof.

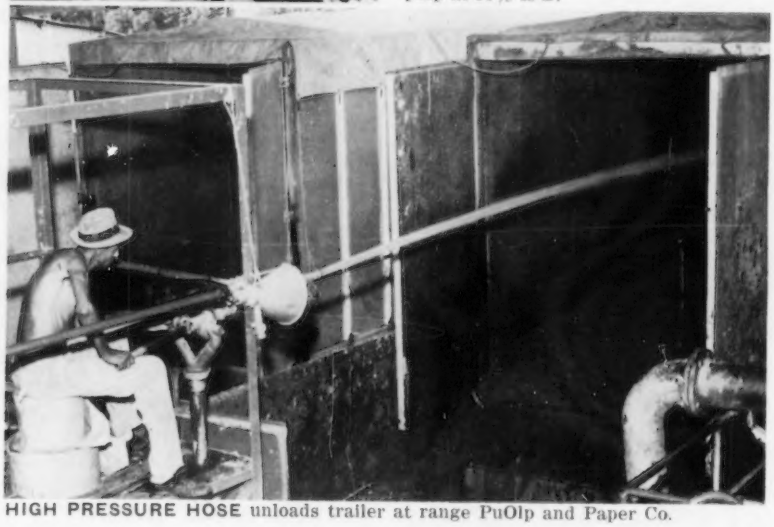


Shipping Nodular Pulp

East Texas has pioneered in the shipment of "Nodular" pulp, that is pulp in crumb form from a screw press. Unbleached pulp is bled off before the bleaching plant and fed to a Zenith screw press which discharges the pulp at 35 percent air dry. It is carried by trailer truck to the Orange Pulp and Paper Co., Orange, Texas a distance of about 30 miles. The pulp is fed by overhead screw conveyors into the closed trailers through three openings in the roof.

At the Orange Pulp and Paper Co. mill the trucks are backed down a slight incline to a conveyor system. Here the pulp is removed from the truck through its rear doors by means of high pressure hose and is conveyed directly into the mills stock chests.

←ZENITH PRESS produces Nodular pulp at 35% A D.



HIGH PRESSURE HOSE unloads trailer at range PuOlp and Paper Co.

Recovery System

The recovery unit, evaporators and power plant have been grouped together for greater ease of operation. Evaporators are entirely outdoors while the recovery and power boilers are in a building of the semi-outdoors type.

Weak black liquor is sent to the sextuple effect evaporators, designed and manufactured by Goslin-Birmingham. The first effect is divided into two passes to promote heat transfer to the relatively small but high density liquor volume. The weak liquor feed is divided between the fifth and sixth effects, pumped from each to the fourth effect and from the fourth effect to the soap tank, where soap is reclaimed from the liquor. The liquor is then pumped to the third effect, then from the third to the second, second to 1B effect and from 1B effect to 1A from where it is passed on to a flash tank where sensible heat in the product liquor is recovered and utilized to increase the evaporation in the evaporators.

Initial evaporator design was for 170,000 pounds per hour evaporation with feed at 15 per cent total solids. Concentrated liquor design is 50 per cent total solids. When operating at 40 pounds design steam pressure, evaporators can exceed design rate by about 20 per cent.

Worthington special alloy centrifugal pumps transfer the liquor between effects and concentrated liquor from the flash tank to the storage tank.

Following the initial concentration in the multiple effect evaporators, the black liquor from the black liquor storage is pumped to the precipitator, where the precipitated salts are recovered. The liquor then passes through the chemical ash tank into the cascade evaporator.

Black liquor leaves the cascade evaporator at approximately 68 per cent solids concentration, passing over the weir plate in the flow box and then through a motor driven rotating cylindrical strainer. Once the liquor has been strained, it flows by gravity into the salt cake mixing tank. The liquor flows from the salt cake mixing tank through a direct contact steam heater and then to a centrifugal pump in the basement. This pump is of special alloy construction designed to withstand the caustic and abrasive action of the liquor. Rate of liquor feed is controlled by varying the rate of speed of the pump. The pump sends the concentrated liquor through another direct contact steam heater and then to the header which supplies the liquor spray guns.

Recovery Furnace

Six liquor spray guns, three on each side, inject the liquor into the combustion engineering furnace.

Recovery Boiler

The boiler section is a conventional three drum design having two passes. The third pass houses a four row finned tube integral economizer. Hoppers located at the turn of the first and second boiler pass pick up entrained ash that separates from the gas stream through centrifugal action. These hoppers are washed down with liquor from the chemical ash tank through a closed system which permits the return of ash to the ash tank. A motor driven agitator keeps this ash in suspension, and it is ultimately carried over into the cascade evaporator and on to the furnace. A Worthington special alloy centrifugal pump, driven by a 15 h.p. motor, circulates liquor through the hopper wash down connections. Return is by gravity.

The main dissolving tank is equipped with a Mixing Equipment Co. side entering agitator driven through reduction gears by a 25 h.p. motor. Green liquor is recirculated from the tank through sprays. The recirculating pumps are Worthington special alloy centrifugal type.

The maximum design pressure of the recovery unit, furnished by Combustion Engineering, Inc., is 675 p.s.i., operating at 625 p.s.i. and 700°F. at the superheater outlet. The unit has an average predicted steam flow of 132,000 pounds per hour when operating at the guaranteed capacity of 900,000 pounds of dry solids per day.

Precipitator

Koppers Co. supplied a twin chamber, "Koppers-Elex" electrostatic precipitator, capable of handling 130,000 c.f.m. of flue gas at 300°F. Twin chambers allow by-passing. Each chamber consists of two essential units; the precipitation chamber where the gas is cleaned and the dust removed and an electrical unit to supply high voltage direct current.

The collecting electrodes are steel plates arranged in vertical rows. The dust collected is removed from the plates by a pneumatic rapping system and allowed to fall into a conveying system on the floor of the precipitation chamber. It is removed by a drag scraper mechanism into a sluice hopper whereas it is continuously sluiced into a mixing tank below the precipitator.

The discharge electrodes are stainless steel wires and are supported between the collecting electrodes in vertical pipe frames. The wires are electrically charged at approximately 65,000 volts differential from the plates.

Breechings and dampers were supplied by Connery Construction Company.

For the handling of salt cake, a Fuller Airveyor System has been installed. This system unloads from box cars and delivers to main storage bin, reclaims from main storage bin and delivers to service bin or salt cake feeder hopper above the mixing tank in the recovery building. All material reclaimed from the main storage bin is passed through a swing hammer pulverizer, making a minus 1/8" product for delivery to the mixing tank in the recovery building.

Power Boiler

A power boiler furnished by Babcock & Wilcox, capable of burning waste bark and natural gas, has been designed to provide the balance of the mill steam requirements and has a capacity of 230,000 p.p.h. on mixed fuel. A superheater of the pendant type is installed and tubular air heater and economizer are provided. An attemperater insures an even steam temperature at all steam flows. Waste wood and bark is fed into the boiler by three Detroit Stoker pneumatic type feeders. The grate is of the continuous-ash-discharge type, discharging to the front, with a long burning and cooling period on the grate before discharge to the ash-pit.

Natural gas fuel is introduced through six B & W ring-type burners with supplementary automatic shut-off valves, interlocked to close upon failure of the forced draft and induced draft fans and low gas supply pressure.

Boiler is of the single pass design, design pressure is 725 p.s.i.g. operating pressure 615 at superheater outlet; and operating temperature 750°F.

Other features include an overfire air system and cinder re-injection for increased efficiency.

Power boiler operates in parallel with black liquor recovery unit, the steam of the black liquor unit is governed by the process and the power boiler is under full automatic control to maintain steam pressure. A base load is set on the master and the gas feed is proportioned to supplement the bark feed to maintain the base load.

The bark feed from the drum barkers is transferred to the belt conveyors by way of a shredder of the Gruendler type. Bark is then carried to a live-bottom bark bin where the bark is fed across the bin toward the boiler and discharges into three chutes feeding the three spreaders. A variable speed drive regulates the rate of feed of the bark to the spreaders.

Make-up water is taken from the main millwater supply and passed through a six unit demineralizing treatment plant supplied by Cochrane Corporation. This demineralizing is a two step ion exchange process. The carbon dioxide is removed by degasification in an intermediate decarbonator before the basic anion exchanger.

The boiler feed pumps, one driven by a 500 h.p. motor and one by a De-Laval turbine drive, are of Bingham make, five-stage.

Air compressors, one for main mill supply with a capacity of 1,100 c.f.m. at 100 p.s.i. and one instrument compressor at 300 c.f.m. capacity are supplied by Worthington Corp. Air for instruments is dried by passing through an air drier supplied by Pittsburgh Electrodrier Corp.

Recausticizing

The recausticizing system incorporates a standard Dorr clarifying system. Green liquor from the dissolving tank is pumped through a Dorr green liquor clarifier. By clarifying the liqor before storing, the usual sludge build up in the tank is eliminated. Green liquor is pumped through a slaker where it is combined with burnt lime drawn from a 4,000 cubic foot storage silo. The silo is equipped with a screw feeder in its conical bottom. The screw feeder discharges into a totally inclosed drag chain conveyor which is running at a faster rate so as to even out the flow of lime to the slaker. The limed liquor is pumped to three 1,000 cubic foot agitated continuous causticizers located above so as to permit gravity flow to the white liquor clarifier. The causticizers are stainless steel lined with Portland cement bottoms. The white liquor clarifier and the white mud washer are the standard Dorr four tray type.

Lime Re-burning

The Oliver lime mud filter utilizes an L-7 Nash vacuum pump. The lime mud is discharged by a screw conveyor into an 8 foot diameter by 250 foot Traylor lime kiln. Chemical losses are made up by burning lime rock in the kiln along with the mud. Exhaust gasses from the kiln pass through a Peabody Scrubber before being discharged to the atmosphere. Heat for the kiln is supplied by burning natural gas.

Burned lime is discharged from the kiln into a totally inclosed pit in which is installed a chain belt hot lime drag conveyor mounted in a trough of hard nickel alloy construction. Air from this pit is exhausted by the kiln secondary air fan so as to eliminate the usual dust problem in this area. This drag conveyor discharges into a Chain Belt hot lime vertical centrifugal discharge bucket elevator which drops the lime into the top of the hot lime silo. All of the hot lime handling equipment has been carefully sealed and vented to eliminate dust seepage into the building. The pumps used throughout the recausticizing plant were supplied by the Worthington Machinery Co. The liquor storage tanks were built by Chicago Bridge and Iron Co.

Power Generation, Distribution and Utilization

To provide power for a connected load of approximately 23,000 horsepower, at the mill, two sources of power have been made available.

A tie with the Gulf States Company utility system is provided by a 14-mile 67 KV. wood pole line and a 5000 KVA. three phase delta-star transformer equipped with cooling fans. The transformer is located in a small substation on the plant site and delivers power to a 13.8 KV. Bus. A gang operated disconnect switch, owned by the mill, is located at the end of this bus, and the switch feeds through a short run of high voltage rubber cable to a tie breaker on the main mill switch board in the turbine building.

Additional power is provided by a 7500 KW (9375KVA) back pressure turbo-generator which feeds through a generator breaker directly onto the 13.8 KV. bus in the main switch board.

From seven feeder breakers power is distributed to plant loads at 13.8 KV. and in all cases, except the well feeder, underground cables in transite ducts and manholes are used. The cable is a lead covered, paper insulated 15 KV. shielded type with an overall neoprene impregnated cotton tape. Generally the cables are "looped" through two or more power transformers by double potheads under the oil type primary gang disconnect switch on each transformer.

The well feeder is run underground for about 800 feet to the first pole of an overhead 13.8 KV. line of approximately 4 miles in length. At eight points on this line short tap lines feed to 300 KVA. 3 phase type OA 13.8 KV./480V transformers serving 300 h.p. deep well motors.

The 13.8 distribution system is resistance grounded with resistors at both the generator neutral and the utility transformer neutral. The ground system consists of a series of 20 feet copper well ground rounds driven at intervals around building perimeters or in groups at strategic points. These were in turn bonded together with a loop of 3/0 ground wire to make a continuous ground connection around the plant. All building steel, generator and transformer neutrals and arresters have been tied to this ground system.

Plant feeders are protected by two overcurrent relays and one ground overcurrent relay. The utility tie feeder and transformer are protected by zone differential protection. Reverse power, and distance reactance relays provide protection against trouble on the utility 67KV. line. The generator is protected by differential relays and voltage restrained over current relays.

Transformers supplying power to mill loads are either 1000 KVA. 13.8 KV./480 volt units or 2000 KVA. 13.8 KV./2400 volt units. All are type OA three phase completely enclosed and have delta-star windings with the neutral brought out. Both 2400 volt and 480 volt distribution are operated solidly grounded.

All motors up to and including 200 h.p. sizes are 440 volt. Motors 100 h.p. and smaller are controlled by combination line starters of the plug-in type. To limit fault duty to 25,000 amps the 1000 KVA. transformers have a 7.7 per cent impedance and either 25,000 amp. AB breakers or high rupturing 600 volt fuses have been used in the combination linestarters. The largest motors up to 200 h.p. are controlled by electrically operated draw-out type air circuit breakers which have motor protection features. These latter breakers along with manually operated air circuit breakers, which feed the motor control centers, are grouped together in metal enclosed cubicles to form a distribution center. The main 440 volt bus in these centers is protected by a 1600 amp. (50,000 AMP I.C.) main transformer secondary air circuit breaker. The air circuit breakers are arranged for selective tripping.

The 2200 volt motors range in size from 250 h.p. to 700 h.p. The 700 h.p. unit is the synchronous motor driving a 102" Murco chipper. Except for the chipper motor both synchronous and squirrel cage 2200 volt motors are controlled by air contactor linestarters and protected by current limiting high voltage fuses. The chipper motor is served by a 1000 KVA. transformer feeding directly into an air-circuit breaker, and is protected by overcurrent relays and a special thermal relay. Pull-out and damper winding protection is provided on all synchronous motor control.

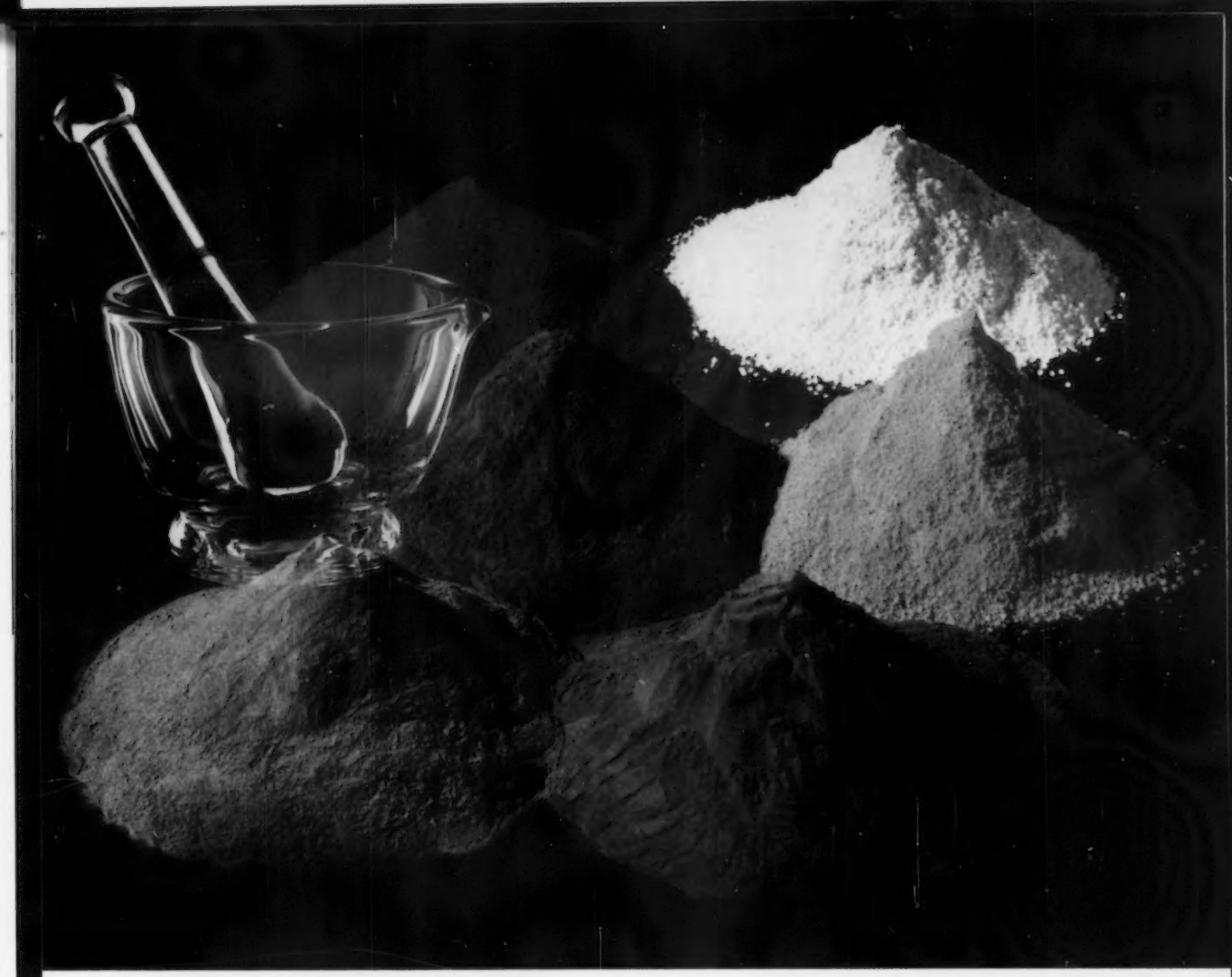
For adequate protection from water and chemicals, motors up to and including 50 h.p. are generally totally enclosed. Above this size totally enclosed units have been installed if considered necessary. All motors in the recovery plant, boiler house, bleach plant, digester plant, flat screen buildings, and recausticizing plant are enclosed. Motor controls are generally grouped together in special rooms to provide protection and in the more corrosive areas these rooms are sealed as far as reasonably possible and provided with air cooler units for heat removal. Exciter sets for synchronous motors and all possible d.c. rotating equipment have been located in these switchrooms, as well as lighting panels where considered necessary.

Lighting in the plant is generally incandescent with fluorescent units confined to offices and special high level lighting areas. Small 480/120-240 volt dry type single phase transformers have been used for lighting power.

To provide protection in case of loss of utility power an automatic changeover system is provided on the turbine to switch from back pressure to speed governing, and auxiliary trips are being arranged to dump non-essential load to get total load within range of the generating units capacity.

Key Management and Operating Personnel

A. G. Natwick—Resident Manager
Clarke H. Morian, Jr.—General Sales Manager
F. W. Nason—Director of Research & Planning
J. B. Beck—Technical Director
John S. Hartman—Plant Engineer
Ray Brown—Pulp Mill Superintendent
Joe Dunn—Paper Mill Superintendent
Clyde H. Kolb—Assistant Paper Mill Superintendent
Ralph S. Grant—Assistant Pulp Mill Superintendent
C. E. Cole—Controller
F. R. Wallace—Auditor
B. A. McMahon—Woods Superintendent
George Wright—Assistant Woods Superintendent
G. A. Roschek—Eastern Manager of Sales
Douglas B. Couie—Western Manager of Sales
F. M. Bowers—Production Scheduling
L. C. Menius—Personnel Director
E. R. Collins—Traffic Manager
Clifford R. Baker—Purchasing Agent
J. W. Robinson—Finishing Room Superintendent
W. A. Moggio—Project Supervisor
F. M. Allen—Chief Chemist
R. L. Paret—Master Mechanic
L. P. Bundy—Chief Electrician
H. M. Kennedy—Instrument Supervisor
J. G. Lee—Power Supervisor



Notice the delicate detail, the grains, ridges and shadows in these piles of powder. And look at the color. It's perfect—and typical of the results your customers can expect from Alpha Protein processed paper. (Photo courtesy Chemicals-Pigments-Metals Division, The Glidden Company.)

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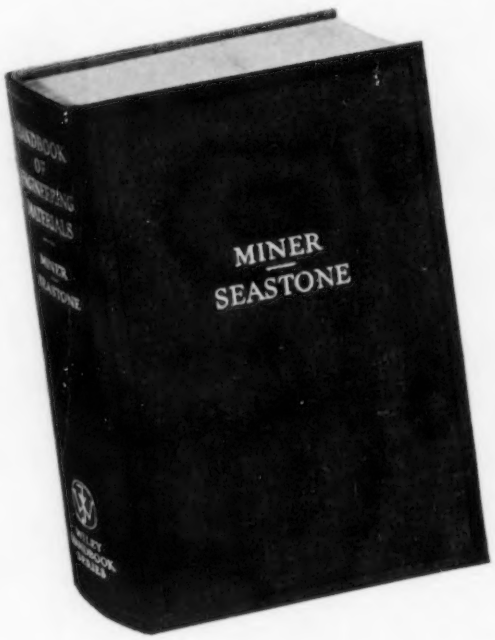

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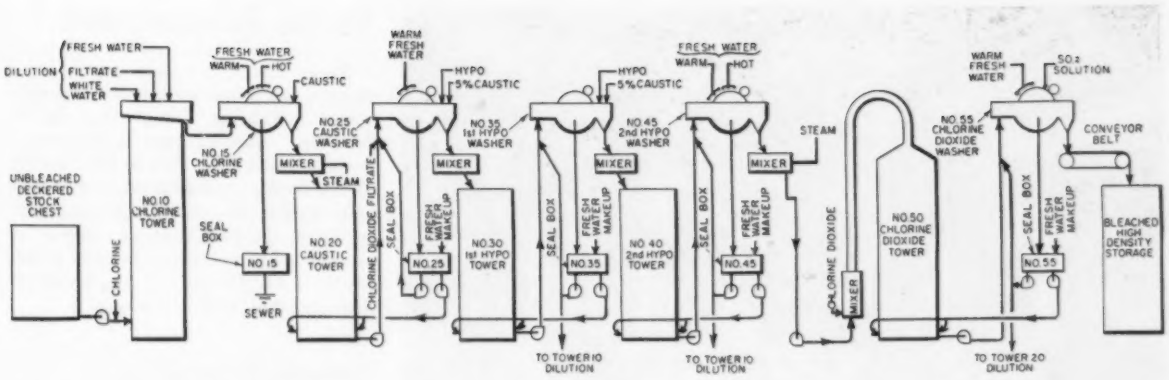


FIVE STAGE BLEACH PLANT is shown in this flow sheet.

Bleaching

Stock from the brown stock decker chests can be pumped directly to a five stage bleach plant. The first stage in the bleach plant is a chlorination tower. The chlorination tower is of the Kamyr design and is 15′ 0″ I.D. by 70′ in height, fabricated from ½″ steel plate, tiled lined with Asplit pointing. The overflow level of the chlorination tower is higher than the washers and the stock flows by gravity into the chlorination washer.

All five bleaching washers were supplied by Impco and are 8′ diameter by 14′ face. The bleach washer vats are of tile construction. Washers are equipped with centrifugal type open discharge seal tanks to provide maximum separation of air and filtrate, thereby permitting full re-use of the filtrate for dilution purposes in the bleaching system. Stock from the chlorination washer discharges by gravity into an Impco mixer where caustic and steam are introduced. The caustic tower measures 18′ inside diameter by 40′ in height.

The third and fourth stages immediately following the caustic soak are also located inside the building with the washers located directly above the towers. These are hypo stages. The fifth bleaching stage is a high-density chlorine dioxide stage of Impco design. Stock from the fourth washer discharges into an Impco double mixer for steam heating at the required temperature and discharges by gravity into an Impco stock pump, which forces the stock at approximately 40 pounds pressure through a Hastelloy C chlorine dioxide mixer. The stock then flows upwards at approximately 12 to 14 per cent consistency through a pre-retention pipe approximately 4′ I.D. by 80′ in height.

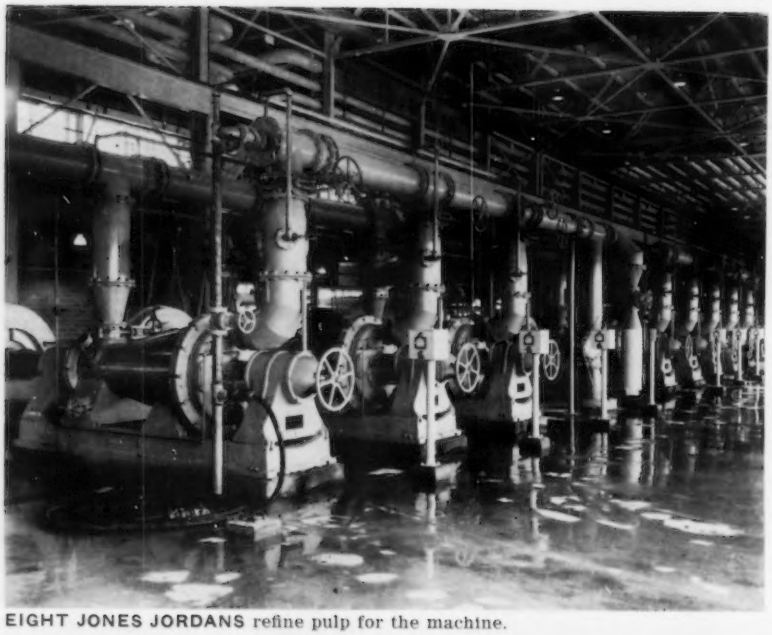
The pre-retention pipe discharges the stock into an 18′ 6″ diameter by 70′ high downward flow high-density tower located outside the bleach plant. The pre-retention pipe and the chlorine dioxide tower are lined with an acid brick laid in polyester cement. Stock from the bottom of the chlorine dioxide stage is pumped back to the fifth washer. This washer is of Stainless 317, extra low carbon construction. Sulphur dioxide is added to the showers on this last washer stage.

The stock is then transported by a conveyor belt to two 35 ton tile high-density storage tanks.

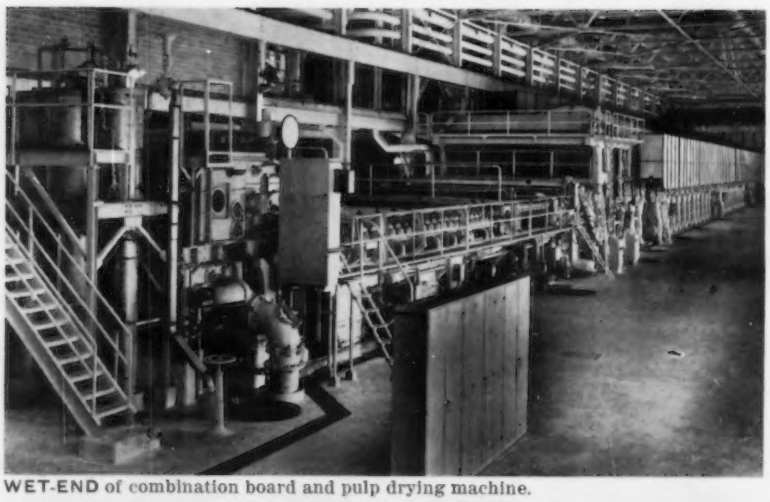
Ventilation systems for the pulping building were supplied by Ross Engineering Corp. Exhaust gases from the bleach washer towers and seal tanks are discharged into a wood stave stack. Tile lining work for the bleach washer towers and seal tanks was supplied by Stebbins Engineering.

Bleached stock from high density storage is pumped back to the flat screen building. There are four rows of flat screens, three primary rows and one tailings row. The accepted stock passes through cypress flumes to a stainless steel rotary type valveless filter similar to the brown stock decker. The flat screen headbox is equipped with a caustic rotameter for neutralizing the sulphur dioxide, which was introduced in the last washing stage. The thickened stock discharges directly into two concrete tile lined decker chests. Stock from here is pumped directly to a storage tank for use in the paper mill.

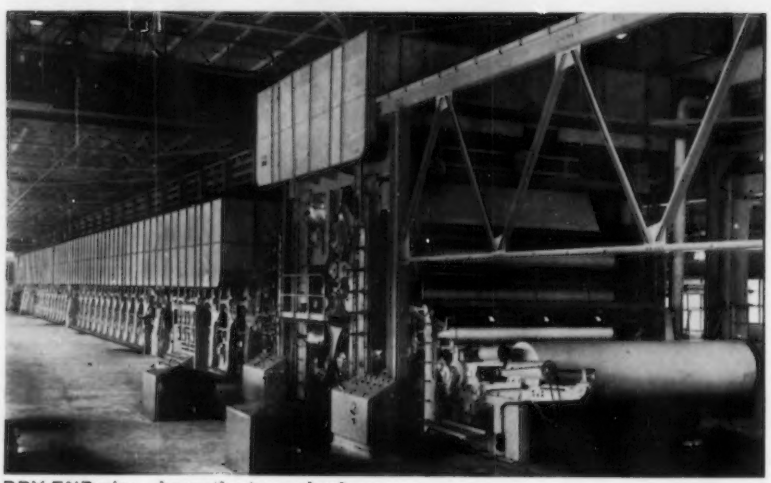
BLEACH PLANT OPERATING FLOOR: Bleached pulp washers (left) with chlorine dioxide stage in background and unbleached washers at right.



EIGHT JONES JORDANS refine pulp for the machine.



WET-END of combination board and pulp drying machine.



DRY-END view shows the two calenders.

Stock Preparation

Stock finishing and papermaking preparation are housed in the machine room, a building 740 ft. long by 80 ft. wide. The structure is reinforced concrete from the foundations to the operating floor. This level gives maximum rigidity for the machine supports yet keeps the placement of concrete at accessible levels. Above this the building is generally framed in structural steel sheathed with transite.

Preparation, Equipment

Storage tanks outside the stock preparation section supply kraft pulp, broke, size and alum to the four tile mixing chests. The tile mixing chests receive these materials through an automatic proportioning system, utilizing Shartle Bros. control valves and Niagara flow meters. These chests are fitted with Shartle Bros. agitators and dump valves, and after a 25 minute cycle of dumping, filling and mixing the stock is dumped into a tile lined dump chest immediately below. From the dump chest the stock is pumped continuously to three E. D. Jones & Sons Co. Majestic lava filled jordans which discharge into a chest below. Half of the stock flow, the machine wet broke and white water are circulated from this chest through an Impco save-all. This save-all discharges back to the same stock chest. From this chest the stock flow continues through five more Jones Majestic jordans: three of which are provided with wide tackle and two with narrow tackle. These last jordans in turn discharge into the machine chest.

Machine Room

The machine is a Beloit 216″ general purpose board machine. The salient features of this machine are as follows: Cross flow pressure head box with rectifying rolls, 59′ fourdrinier, 42″ diameter couch, 34″ diameter rubber covered bottom suction and granite top first press, second press with plain rolls, similar but inverted, six-drum predryer section, third press, smoothing press, twenty-drum dryer section, breaker stack, twenty-two-drum dryer section, size press, eleven-drum dryer section, 2 calender stacks fitted with 3 inter-calender dryer drums, 88″ reel, and 60″ winder. The dryer section is also equipped with four top felt dryers, 4 top Feeney dryers, three bottom felt dryers and 4 bottom Feeney dryers. Included with the machine are the Roots-Connersville vacuum pumps, the Bowser lubrication system, and the Midwest-

Fulton dryer drainage system. The machine is driven by a 1500 h.p. General Electric Co. mechanical drive turbine exhausting steam to the dryer sections.

The J. O. Ross Engineering Corporation supplied the machine hood, the Grewin system, felt supply system, room ventilation and calender cooling system. The machine is serviced by Shepard Niles 59ft. span travelling crane, fitted with two 18 ton trolleys.

The bottom felt dryers were located high enough so that continuous passage for collecting broke is provided in the basement. The three dryer sections are separated by a breaker stack and a size press where starch up to 12 per cent or other treatments can be applied.

A general purpose coater is also located between the two calenders along with the inter-calender dryers. A comprehensive system for preparing coating slurries for use at the size press and calender coaters has been included.

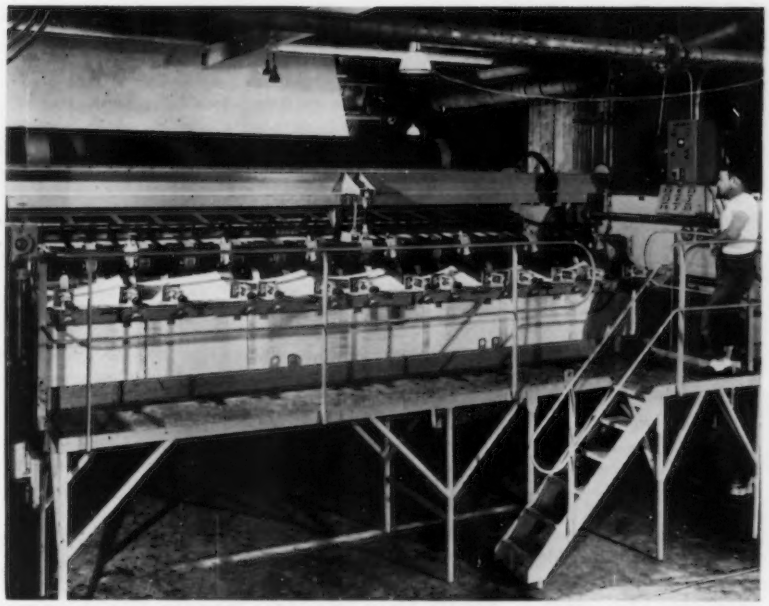
A chest located between the calender foundations extending from the dryer pit to the reel slot handles the dry broke. This chest is tile lined concrete. At the dryer end a 4 ft. conveyor transfers the broke from the floor underneath the dryer into this chest. This chest is fitted with two 16 ft. long E. D. Jones & Co. Pulpmaster assemblies. Any tendency for the dry broke to float is eliminated by the use of heavy broke sprays recirculated from the extraction pumps.

Finishing

From the calenders the sheet may be reeled for further roll finishing. However, if required, the sheet can be carried over the reel through a floor slot directly to 210″ pulp cutter and automatic layboy and conveying system supplied by Lamb-Grays Harbour Co., Inc. An 815-ton Washington Iron Works baling press services this baling line.

After reeling a separate 16 ton Shepard Niles bridge crane transfers the reel to the Beloit winder. The Beloit shaft pulling coonveyor transfers the set of rolls to a Beloit Levelator, which lowers the roll set to the floor. The finishing line equipment at floor level, glue buggies, wrapper rolls with overhead back stand and header, are supplied by Lamb-Grays Harbour Co., Inc.

The Link Belt Lowerator in this wrapping line is also large enough to handle these 5 ft. dia. by 10 ft. long rolls. These discharge to the warehouse and are taken to the 12 roll revolving backstand of the 120″ Moore & White Company duplex rotary cutter and layboy. Near this cutter, located in the warehouse, an 85″ Seybold Hydraulic trimmer prepares the stock before going to the sorting and wrapping benches.

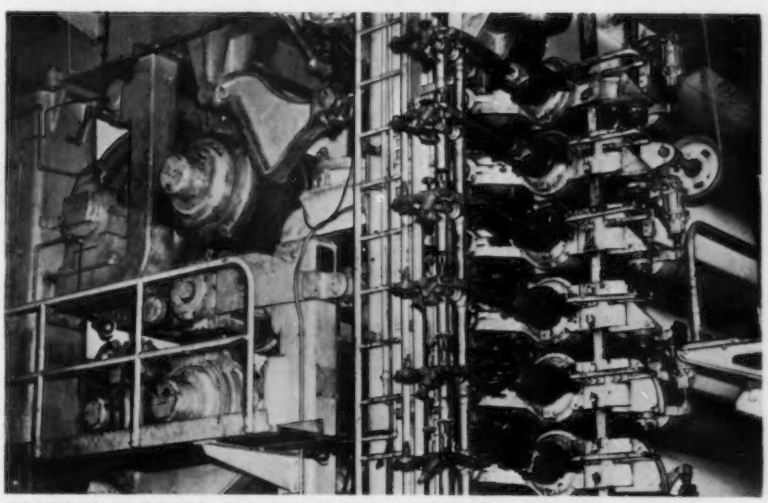


LAMB GRAYS HARBOR PULP SHEETER and layboy.

Effluent Disposal Solution

The Eastex mill is Northeast and upriver from Beaumont, at Evadale, on the Neches River. The problem of disposal at this site was complicated by the fact that the City of Beaumont utilizes the Neches River as a source of its domestic water supply at a point some 24 river miles below the mill site. The disposal system was, therefore, predicated on the basis that mill effluent should not interfere in any manner whatsoever with the drinking water supply for the City of Beaumont.

In order to accomplish this, the mill effluent is conveyed by means of a specially designed and constructed canal for a distance of 14 miles, into a swamp area of 4,500 acres, which is owned by Eastex. Drainage from this swamp area into the Neches River occurs at least 5 river miles below the Beaumont water supply intake at Bunn's Bluff. This swamp is highly contaminated from natural causes, including salt water tidal intrusion from the Gulf of Mexico.



GENERAL PURPOSE FOBER COATER is located between the two stacks.

Very Complete Instrumentation

During the designing of this mill, much thought was given to the function and location of each instrument in order to derive the greatest operating benefits. Similar types of instruments were used throughout the mill, giving the advantages of fewer spare parts, simplified maintenance and uniform appearance. The majority of the instruments are mounted in totally enclosed cubicles, consoles or semi-consoles, which gives them excellent protection. All tubing and wiring enters the panels through bottom openings. These openings are sealed off where the atmosphere is corrosive and air from the mill ventilating system is introduced as a purge.

Considerable use of pneumatic transmission has resulted in shorter high pressure piping, reduced expenditure for anti-corrosive materials, shorter capillaries and faster response to process variations. All tubing at the mill has been installed in channel type racks which provide support, protection and neat appearance. These racks were fabricated at the mill as required during construction. Copper tubing was used throughout the mill and a field applied coating of special varnish protects it against corrosion.

Standard control valves are used for fresh water and steam services, with stainless steel butterfly valves used on stock and white water applications.

Digesters

There are five control panels on the operating floor of this department, one main panel which is concerned with items common to all digesters, and four cooking panels, one for each digester. The cooking panels provide for automatic digester steaming and relief control, automatic steam blow-back for the neck strainer and records of steam flow, digester temperatures and pressure, liquor heater temperature and relief valve position.

On the main panel, integrating meters for total steam flow and chip weight provide figures for accounting. This panel also houses the liquor measuring and blow heat recovery controls.

Locally mounted level controls take care of liquor heater condensate removal, and conductivity cells in conjunction with dump valves protect the boilers from the possible return of contaminated condensate from the heaters.

Brown Stock Washers and Bleach Plant

Since the operating floor is common for both these processes, we will discuss them simultaneously. The brown stock washers are installed on one side of the building, the bleach washers on the other, leaving a long central operating aisle. All control panels are located on this aisle facing away from the washers concerned. Very little control was applied directly at the brown stock washers. Two small console panels were all that was required to house all electrical pushbuttons, ammeters, speed control rheostats, and two indicating controls for stock flow and blow tank consistency.

The main panel, which is located at one end of the operating floor, contains recorders and controls for, water tank levels and temperatures, blow tank level and consistency, stock flow to knotters, chlorine pressure and temperature, caustic storage levels and specific gravity, etc.

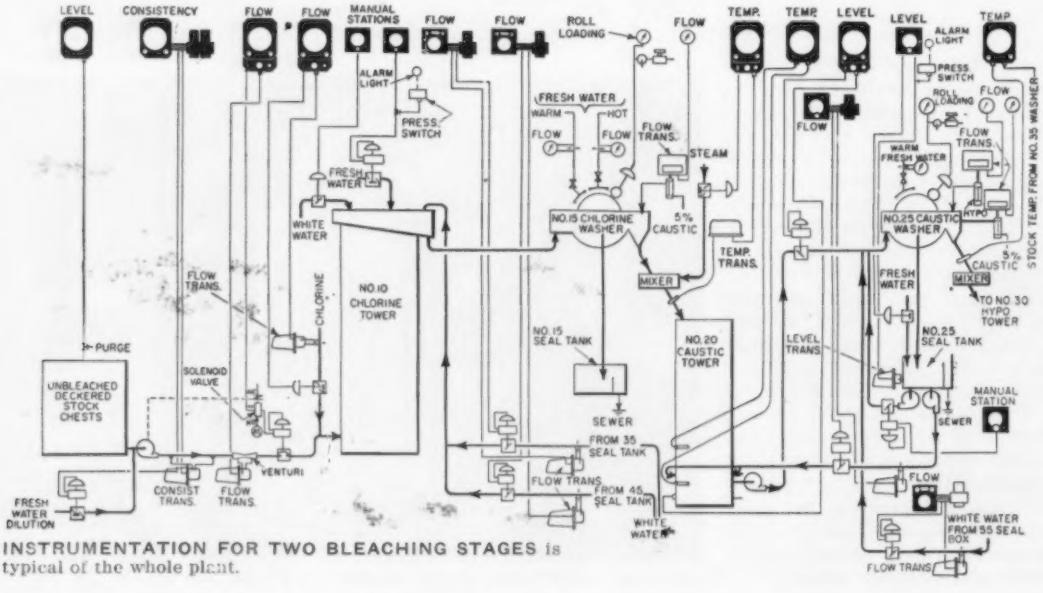
Screenroom

The instruments in this area are concerned mainly with the storage tanks on either side of the screens. Included are the high density storage levels and consistency controls, decker stock chest levels and white water chest level control. The unbleached and bleached stock screens both have an individual cubicle type panel. The bleached side also includes a pH indicator, a caustic rotometer and a consistency control.

Machine Room

When the stock enters the machine room it passes through a group of stock mixers which are set up for batch operation. The controls are applied accordingly. The stock mixer operation calls for stock, broke, alum, size and dye to be added in various proportions and mixed for a given time before being dumped into a storage tank beneath.

Both the stock and broke are continuously pumped and recirculated at a controlled rate and consistency. When stock is required in a mixer, a pushbutton actuates the pilots of two hydraulic powered valves at that mixer drawing off stock from the header, while two similar valves close off the recirculation. When the stock reaches a given point, a level control returns all valves to their original position. The size, alum and dye are added through Niagara meters fitted with an electric contact, so that predetermined quanti-



INSTRUMENTATION FOR TWO BLEACHING STAGES is typical of the whole plant.

ties of each substance may be drawn off as required through air operated valves with solenoid pilots.

A panel at the refining section has instruments to record the various chest levels and consistency controls. The jordan inlets are fitted with volumetric type pressure gauges which indicate the pressure drop across any one or group of jordans.

Rotameters are used to indicate the flow of size, starch and dye at various points of the process when continuous type control of additives is required.

At the wet end of the machine, a large cubicle provides records and controls for stuff box consistency, machine speed, flat box and couch vacuum, filtrate overflow rate, various chest levels and other data pertinent to wet end operations. At the various sections of the press roll loadings and the numerous machine, benchboards and frame mounted panels supplied by Beloit, enable the operator to adjust draw controls, other items which require his attention.

The dryer sections are steamed and drained by a Midwest-Fulton system. Two moisture controls have also been installed on the main and dry end section of the dryers.

Recovery and Evaporators

The recovery boiler panel provides records and controls of not only the boiler conditions but also the complete liquor circuit. The usual boiler type instruments are used to record the drum pressure and level, feedwater flow and steam flow, while process type instruments are used for cascade evaporator level, liquor heaters, dissolving tank baume and level, etc. An electrical section adjoins the instruments making possible the operation of the boiler from a central location.

The controls for the sextuple effect evaporator are mounted in a large cubicle adjacent to the recovery board. On this panel are controls for steam pressure, boiling point rise, liquor flows and soap tank level. Records include steam flow, temperatures throughout the evaporator and liquor tank levels.

Recausticizing and Lime Kiln

A cubicle panel located in the operators test room provides control for green liquor flow and records of water flow and temperature, slaker temperature and the load on the rakes of the white liquor clarifier and mud thickener. The levels of the various storage tanks are indicated on this panel.

The lime kiln gas and air flows are controlled by electronic temperature controllers actuated by thermocouples inserted through the kiln shell at the calcining zone. Records of temperatures at other points along the kiln and at the dust chamber are also provided. Hood draft control actuates the uptake damper and an extremely sensitive draft recorder registers the results. An integrating gas flow meter completes the instrumentation mounted on the kiln panel. Extra instruments, locally mounted, are lime mud density control, filter cake thickness and lime mud recorder. These measurements are transmitted to the hot end of the kiln for the operators attention.

Consistency Regulation

There is mill-wide use of the line-loss type consistency controls which are giving extremely good service and accurate control. These units make use of low range differential pressure transmitters connected to two pressure taps in the stock line some distance apart. This distance may be calculated from tables on friction losses in pipe. High pressure water purges are used to prevent the connecting tubing from plugging with stock. A receiver controller is fitted with two recording pens, one for the controlled consistency, and the other for control valve position. The latter may be regarded as the consistency prior to control. These controls are giving accuracies within one-quarter of one per cent consistency, even on lines subject to reasonable flow variations.

The majority of the instrumentation at this mill was supplied by the Taylor Instrument Co., but Bailey, Masoneilan, Fischer and Porter, and Foxboro are well represented. Control valves were supplied by Fisher, Continental, Masoneilan and Annin.

What's Unusual at Eastex?

We asked East Texas what they considered the most interesting and unusual features of the mill. We received the following comments from Clarke H. Morian Jr., vice-president.

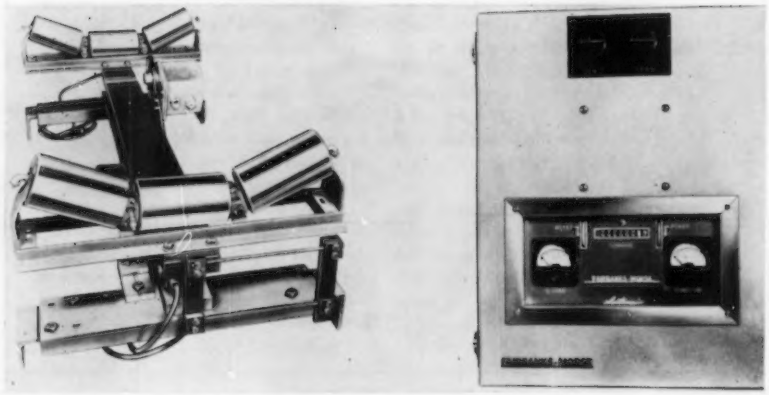
- We are one of the few mills which is entirely independent and devoted to the sale of bleached market pulp, bleached paper and board. We have no affiliation with any converters or other paper mills.
- Instrumentation in the mill has been carried out to a very high degree, and we believe that our mill is one of the most highly "automatic" mills in the country.
- Of further particular interest is the fact that for a mill of our size we have a very fine wood supply under our control in that we own approximately 660,000 acres of Southwestern Settlement & Development Co. land. This insures to us an adequate and continuous source of raw material for the future. We believe that for a mill of our size, this wood supply is out of the ordinary.
- This mill is one of the most modern, and streamlined mills that has been built in the country, and as you know, we are highly diversified in that we not only make paper and board but bleached market pulp for domestic and export consumers in addition to nodular pulp.

Clarke H. Morian, Jr.
Vice-president i/c Sales

Douglas B. Cowie
Western Mgr. of Sales

G. A. Roschek
Eastern Mgr. of Sales

NEW EQUIPMENT AND SUPPLIES

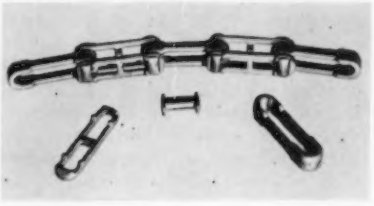


Electronic Belt Conveyor Scale

A newly developed electronic belt conveyor scale has been developed by Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago, Ill. It weighs materials on the run and ensures exact material flow control. The load weight on a given area of belt and speed travel of the belt are integrated electronically and expressed in accumulated tonnage on a remote register. The efficient unit eliminates the need for a separate weighing operation and provides close control over belt loading. A remote indicator shows the per cent of capacity at which the belt is running. A second indicator shows the tons per hour being delivered.

Largest Rivetless Chain For Conveying Systems

A rivetless forged chain for heavy conveying operations, tested for breaking strength in tension of over 200,000 lbs., is now being furnished by Transue & Williams Steel Forging Corp., Alliance, Ohio. The chain weighs 16 lbs. per foot. Precision machined links and coin pressed pintles assure full, uniform bearing, easy assembly and disassembly. The design permits flexing laterally as well as around sprockets, so the chain travels freely on a close radius curve. Standard material is heat treated forging quality steel. The chain can also be furnished in special heat- and acid-resisting metals.



Smaller sizes are available, including 9 in., 6 in., and 4 in. pitch, weighing respectively 9.6 lbs., 6.6 lbs., and 3.11 lbs. per foot, and a heavy design, with 4 in. pitch weighing 7 lbs. per foot. Shipped in 10-foot strands for convenient handling.

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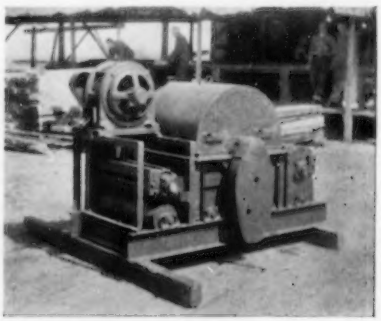
Midget Fire Truck For Plant Use

A new small fire truck for industrial plants is now available from Ansul Chemical Co., Marinette, Wis.

The truck can go anywhere an ordinary plant lift truck can go. It is only 5 feet, 8 inches high, giving the driver a good view in every direction. A man of average size can reach right over the truck to get whatever equipment he needs.

Dry chemical, carbon dioxide and water are provided as extinguishing agents, according to the plant's need. The truck can also carry other fire fighting tools. Available accessories include ladders, utility bar, light, hose, portable fire extinguishers and extra nozzles, all mounted with quick release brackets. There is storage room on the truck for fire blankets, boots, air masks, coats and a first aid kit. A flashing red light can be mounted on the top of the cabinet.



Slabs Cleaned With Brush Unit

A new debarker, of the chain-flail type and available in two models, is announced by Beaver Lumber Co., Clatskanie, Oregon. The product is said to give a cleaner barked slab with less splintering than any other machine currently on the market.

Two models are available. One has a single chain drum, the other has a standard chain barking drum followed by a brushing drum for removal of excess cambium layer and bark flakes.

Called Little Beaver Slab Barker, the unit has an infeed opening 24 in. wide by 7½ in. tall and will handle slabs from a minimum length of 7½ in. Top and bottom feed rollers are power fed and adjust automatically to any slab size. With adequate slab infeed conveyors, the unit is intended for one man operation with a continuous feed. Bark and trash is discharged at the bottom of the barker. Standard feed speed is 75 ft. per minute.

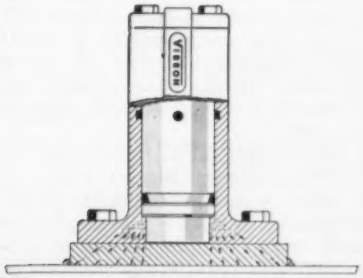
Barking is accomplished by a series of chains mounted in rows around a drum. The chains are so spaced to

cover completely slabs going through the machine. It is not necessary to raise or lower the chain drum for different slab sizes. The chains are so arranged that in the arc of rotation they pass over, around and below the slab edges. On the double drum unit, a 4-speed drive is installed on the feed rolls for better barking on thick slabs. Capacity of the barker is 20-30 cords per 8-hour day. For further information see Equipment Handbook No. 271, American Pulpwood Assn., 220 E. 42nd St., New York, N.Y.

Leather Belt Cement Is Quick-Drying

A new waterproof leather belt cement that dries in half the time is announced by J. E. Rhoads & Sons, 2100 W. 11th St., Wilmington 99, Del. Under normal conditions a double belt can be glued and run within an hour after application.

The bonded surface is said to be stronger than other waterproof cements. It even sticks when leather is slightly moist or oily. Extra tackiness keeps Belt laps in alignment while cementing. With JE538 only one sizing coat is needed, as compared to two often required by other waterproof cements, and, the cement will withstand constant flexing over the pulleys. It is waterproof and oil resistant. Belt laps are not weakened (under normal conditions).



Vibrator Saves Machine Bolts

A new shock column virbator, developed and now manufactured by Burgess Starbanks Corp., 3790 W. 150th St., Cleveland, Ohio, is said to completely eliminate machine bolt breakage due to vibration.

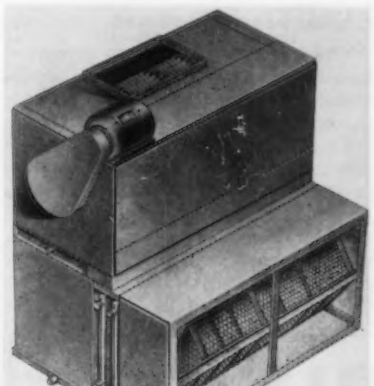
The unit has high strength due to its mono-coque design of one piece. Incorporated in the product is a high compression drive and a new shock column impact system. The power of each stroke is substantially increased through the use of a vibron high compression cycle, which supersedes conventional air cushioning to drive the piston against the anvil. Design of the product assures continuous impact of the piston against the anvil.

Batches Prepared Automatically

An electronic program controller for the preparation of industrial batches is the recent addition to the line of Fairbanks-Morse, Inc., 600 S. Michigan Ave., Chicago, Ill.

Operation is effected simply by the insertion of pre-punched cards into a card-reader located on the console control panel. The system automatically selects and weighs out the proper ingredients for a batch. All controls are located on the panels including monitor sequence lights which enable the operator to follow the complete sequence of batching operations visually.

Auxiliary manual controls are also mounted on the control panel for corrections or changes in batching operations when desired.



Air Handling Combination Units

A new line of air handling combination units for general ventilating, heating, and air conditioning applications, has been announced by Westinghouse Electric Corp., Box 2278, Pittsburgh 30, Pa.

Designated as series 1600, the units are available in 13 basic sizes capable of handling 500 to 48,500 cfm. Constant air flow is assured by deep, closely spaced, forwardly curved blades.

Designed for minimum space requirements, all the unit components are readily accessible for inspection, lubrication and filter changing. The complete line features standard blast and steam distributing coils, direct expansion and water heating and cooling coils.

Simple installations are possible because only a single outlet duct connection is necessary. All components, such as the fan section frames and panels, coil casings, filter sections and by-pass dampers are fabricated of heavy gauge galvanized steel.

NEWS OF SUPPLIERS

G. L. Brown

R. C. Ten Eyck

Pennsylvania Industrial Chemical Corp. has opened a sales residency in Cleveland, Ohio. Gardner L. Brown will be in charge of the new Cleveland office and will cover the Northern Ohio area.

Mr. Brown will provide technical sales service on Picco's line of solvents and resins, with particular emphasis on coatings, paper and solvents industries. He will coordinate his work with the company's Detroit District Sales Office.

Goodyear Tire & Rubber Co., Akron, Ohio, has promoted Richard C. Ten Eyck to manager of Tank Lining and Industrial Rubber Covered Roll Sales department. Mr. Ten Eyck replaces R. M. Junker, who has resigned.

F. C. Huyck & Sons, Rensselaer, N. Y. has purchased all outstanding capital stock of the Waldorf Instrument Corp., Huntington Station, L. I., N. Y. Terms of the transaction were not disclosed.

The present Waldorf management, headed by H. W. Waldorf, president and founder of the company, and B. A. Parkhurst, executive vice president, will continue unchanged. At its present plant, built five years ago, Waldorf employs a staff of 350 skilled engineers and technicians. A new plant in Huntington, to be completed in October, will bring its manufacturing space to more than 100,000 sq. ft.

It will speed the reply to your inquiry to mention Paper Trade Journal.

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With the marvelous new Boler Emulsoflex Waxes you don't have to worry about fugitive sizing... Emulsoflex Waxes assure uniform sizing, have no effect on the physical properties of the finished sheet. Moreover, these new sizing blends developed in the Boler laboratory are anhydrous, meaning that you don't pay shipping costs (up to 50%, ordinarily) on water, but simply add it in your own plant.

Emulsoflex Waxes are the correct mixtures of high melting-point, hard microcrystalline waxes and wax soluble emulsifiers. As such, they improve lactic acid resistance ...reduce "percentage drop" on mullen test...and increase water and grease resistance of molded pulp products. The sizing materials you should have are Emulsoflex. Write us today for further information.

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121 S. Broad St., Philadelphia 7, Pa.

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PAPER PEOPLE

Kon Matchuk

William Taylor

Chillicothe Changes

Chillicothe Paper Co. has promoted Kon Matchuk to the position of superintendent, and William Taylor to assistant superintendent.

Chillicothe Paper Co. a wholly owned subsidiary of the Mead Corp., is now in the process of an expansion program, entailing the expediture of about seven million dollars, which includes the installation of a fourth paper machine, which will be in operation in the third quarter of 1957.

John Hegeman

Hegeman and Brown Advanced by Brown Co.

John Hegeman has been promoted to production manager of the kraft and sulphite mills of Brown Co., Berlin, N. H.

Theodore M. Brown has been advanced to control superintendent of the two mills.

Mr. Hegeman, who has been serving as assistant manager of the pulp mills since last fall, joined Brown Co. in 1946 as a chemical engineer in the Research Department. He left the company in 1949 to work for Congoleum-Nairn of Cedarhurst, Md., before returning to Berlin in 1950 as kraft mill chemist. He was promoted to assistant superintendent of the kraft mill in December, 1950, and to technical supervisor of the Pulp Division in September, 1952.

Mr. Brown, joined Brown Co. in 1926 as a research chemist. Following 21 years in research work, he transferred to manufacturing, serving first as chief technical control chemist at Burgess Mill. In 1948, he was promoted to the position of plant chemist, in 1950 to technical control supervisor and in 1955 to technical supervisor.

Gillespie Named Gen. Mgr. at Bogalusa

W. F. Gillespie, has been appointed general manager of the Bogalusa Mill Division of Gaylord Container Corp., a division of Crown Zellerbach Corp., to succeed Alfred Suter who died on July 14. Mr. Suter's obituary appeared in last week's issue of **Paper Trade JOURNAL.**

Mr. Gillespie, for many years, was technical director of the Bogalusa mill and for the past year was assistant general manager. He served a partial term and then a full term as president of TAPPI.

FOURDRINIER OPERATORS

If you are desirous of producing more paper at a lower cost, we can help you.

POIRIER CONTROL CO. WATERVILLE 1, ME.

Federal Paper Board Elects New Vice President

Federal Paper Board Co., Inc. has elected John L. Mousley as a vice-president of the corporation. Mr. Mousley, who is in charge of paperboard sales for the company's seven board mills, has been with Federal for many years, serving in various capacities. He was paperboard consultant to the War Production Board during World War II.

Garfield Named V.-P. Of Ashuelot Paper Co.

Russell M. Garfield has been elected vice president of Ashuelot Paper Co. He joined the company in 1941 and has served there continuously with the exception of four years with the Air Force during World War II. He became assistant treasurer and purchasing agent in 1946, and was promoted to general manager in 1947, which position he will continue to hold.

American Box Promotes R. D. James

American Box Board Co., has appointed Robert D. James as director of special food board products sales. Mr. James joined the firm in 1940 and was formerly sales manager of the company's Grand Rapids mill and folding box plant.

Figures of the Week

PAPER PRODUCTION RATIO REPORT —American Paper & Pulp Ass'n. Figures

(Production as percent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	June 16	June 23	June 30	July 7	July 14
1956	99.9	99.1	98.7	64.0r	89.5
	June 18	June 25	July 2	July 9	July 16
1955	98.7	98.4	95.3	60.4	89.3

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1955	93.6	96.6	97.9	98.0	99.3	97.4	85.5	96.2	93.8	101.2	100.6	94.0	94.9
1956	99.6	102.6	102.9	102.3‡	101.2‡	99.6‡							

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1949	1950	1951	1952	1953	1954	1955	1956
Year to Date	80.9	94.2	99.9	90.9	92.6	91.4	94.6	99.3
Year Average	83.7	95.8	98.0	88.6	92.3	91.6	94.9	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: In the above tables all the ratios shown are on the basis of a normal 6 and 7 day capacity.

PAPERBOARD OPERATING RATIOS†

COMPARATIVE WEEKLY SUMMARIES

	June 16	June 23	June 30	July 7	July 14
1956	99	99	97	56	70
	June 18	June 25	July 2	July 9	July 16
1955	99	99	96	55	77

COMPARATIVE MONTHLY SUMMARIES

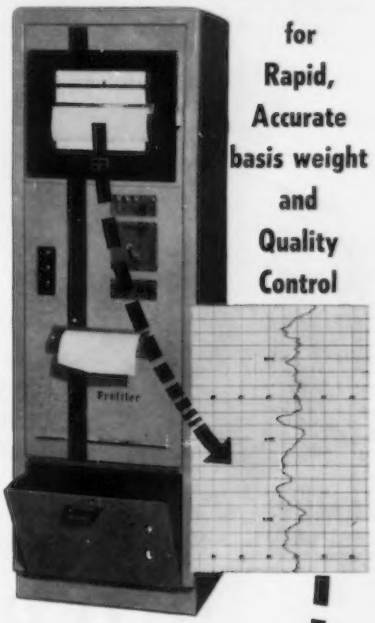
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1955	92	95	96	94	97	97	84	99	97	102	101	92	96
1956	100	100	99	100	99	98							

† *Percents of operation based on "Inch-Hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Ass'n. Figures

ITEM	THIS WEEK ENDING July 14, 1956	LAST WEEK ENDING July 7, 1956	CUMULATIVE TO DATE Jan. 1956 to July 14, 1956
% Activity	70%	56%	96%
	Tons	*Tons*	*Tons*
Total Production	202,972	178,617	7,760,589
Liner	74,443	72,297	2,651,107
Corrugating Material	31,353	26,594	1,215,042
Chip & Filler Board	4,193	6,577	172,210
Total Containerboard	109,989	105,468	4,038,359
Folding	33,806	22,878	1,399,731
Set-Up	5,947	3,840	346,710
Special Food Board	24,904	20,478	658,448
Other	28,326	25,953	1,317,341
Total Boxboard	92,983	73,149	3,722,230
Total Orders	*Tons*	*Tons*	
Received	220,607	273,007	
Unfilled At End of Week	528,096	512,197	

MORE THAN 60 PAPER COMPANIES USE THE BETA PROFILER



for Rapid, Accurate basis weight and Quality Control

Beta Profiler in operation. Measures cross-web profile variations. Pays for itself in product improvement.

- Records direct reading basis weight.
- Automatically integrates profile graph to give averaged weight per area of entire sheet. Profile and average in 3 to 5 minutes.
- "Null Balance" operation automatically compensates for thermal and barometric variations. Minimizes need for recalibration.
- May be used with several machines. Will analyze short term machine direction variations and formation. Will measure felt and wire wear patterns.

Samples taken across the paper web are fed into the Profiler and the variations are recorded on a strip chart. Simultaneously, high and low spots are totaled and divided by sheet length giving a record of integrated average basis weight. Profile and integrated average values are correct to one quarter pound per 3M.

Free sample analysis: send across the machine sample,—8-10" wide, rolled to prevent creases, to us for free basis weight and profile study.

isotope Products

1700 Niagara Street, Buffalo 7, N. Y.

ROGERS
SERIES 220
KNIFE GRINDERS

180" CAPACITY SIZE
WITH
MAGNETIC KNIFE BAR
STANDARD DRIVE

MOTORS
10 to 30 H.P.

GRINDING WHEELS
16" to 30" Diameter.

HYDRAULIC AND ELECTRO-MECHANICAL TABLE DRIVES

SINCE 1887

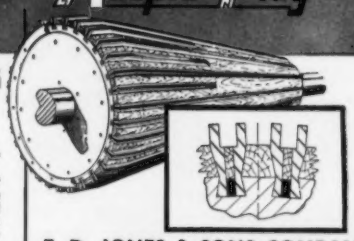
SAMUEL C. ROGERS & CO., INC.
2090 SHERIDAN DRIVE — BUFFALO 23, N. Y.

PULP

High Grade Unbleached Sulphite
Canadian Newsgrade Groundwood
Spot or Contact Basis

Paper Corporation of United States
Rockefeller Center — Phone Circle 7-1637
630 FIFTH AVENUE — NEW YORK

E. D. Jones Adapta-Plug

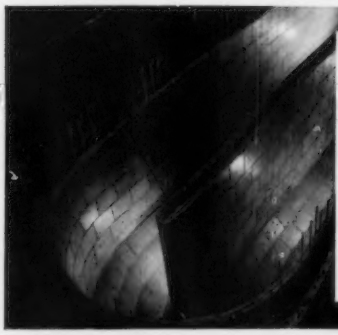


- Strongest plug design yet developed
- Completely bandless
- Easiest plug to strip and fill
- Bars held rigid — cannot move
- No hazard of slot wear or corrosion
- Available in solid plug or sleeve form for old or worn plugs

Ask your Jones representative or write us direct.

E. D. JONES & SONS COMPANY
Pittsfield, Massachusetts
In Canada: The Alexander Fleck Ltd., Ottawa

Builders of Quality Stock Preparation Machinery



Kalamazoo
GLAZED TILE
TANKS, CHESTS, LININGS
Impervious to corrosion. Any size or shape, engineered to your needs. For new construction or remodeling, your best bet is *Kalamazoo.*

Kalamazoo TANK and SILO CO.
TILE TANK DIVISION
725 HARRISON ST.,
KALAMAZOO, MICH.

BUY
U. S. SAVINGS BONDS

J. E. SIRRINE CO.
Greenville, South Carolina
PAPER & PULP MILLS • WASTE DISPOSAL • TEXTILE MILLS •
APPRAISALS • WATER PLANS • STEAM UTILIZATION •
STEAM POWER PLANTS • HYDRO-ELECTRIC • REPORTS

Supplying Your Requirements

YOUR PAPER WASTE BECOMES PROFIT WHEN IT IS RECLAIMED. DO YOU SUPPORT THE MILLS WHICH MAKE THIS DISPOSAL POSSIBLE?

WASHINGTON, D. C.
CAMDEN, N. J.
NEW YORK, N. Y.
MINNEAPOLIS, MINN.

THOMAS PAPER STOCK COMPANY
1500 No. Hooker Street • Chicago 22, Ill.

Magnus "Steels" the Market with 3 ALL STAINLESS Screen Plate Designs

AT MAGNUS you can get the chrome-nickel-steel screen plates best suited to your needs:

1st, there's the THIN SHEET fabricated plate that eliminates relief milling and with recommended arrangement, substantially increases present screening capacity.

2nd, there's the ¼" MAGNUS SOLID PLATE—almost twice as thick as any other one-piece stainless steel plate available today, with correspondingly higher strength and longer life, adaptable for installation on any type of screening equipment.

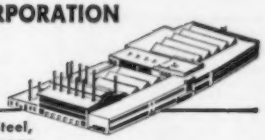
3rd, there's the new 5/32" MULTI-SERVICE PLATE—stronger than bronze, with long-lasting, sharp-edged slots and the corrosion resistance of 100% stainless steel construction.

MAGNUS is your best source for all types of screen plates—stainless, inconel, or bronze—for flat or rotary screens. Write us for complete information.

MAGNUS METAL CORPORATION

Fitchburg, Mass.

Metalworkers for the Paper Trade



SCREEN PLATES: Chrome-Nickel-Steel, Inconel, and Bronze

VALVES: Gate, Swing Check, Blow, Globe, Angle and "Y"

Westvaco Quality Papers

Westvaco manufactures a wide range of high quality paper products — from fine printing to rugged converting papers. All of these papers are made from virgin chemical pulps to precise standards of uniformity and quality — Westvaco's guarantee of top performance.

Printing Papers . . . Coated and uncoated letterpress, coated and uncoated offset, and gravure.

Writings . . . Bond, mimeo, duplicating, ledger.

Bristols . . . Index, post card.

Converting Papers . . . Label, tablet, envelope, lining, file folder, tag, tabulating card, coating raw stock.

Bleached Boards . . . Cup, milk bottle, folding boxboard, frozen food container.

Kraft Papers . . . Bag, multiwall sack, envelope, asphalting, impregnating, waxing.

Containerboard . . . Linerboard and corrugating medium.

Market Pulp . . . Bleached and unbleached sulphate.

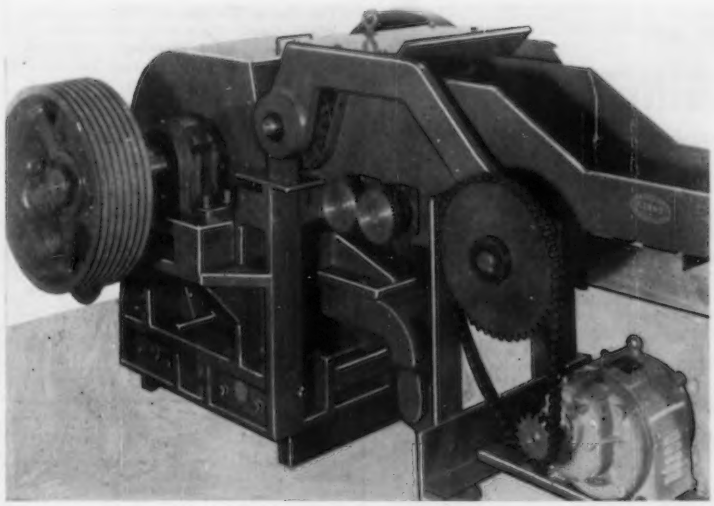
West Virginia Pulp and Paper Company

230 Park Avenue, New York 17, N. Y.

35 East Wacker Dr., Chicago 1, Ill. • 503 Market St., San Francisco 5, Cal.

ANNOUNCING

New TAYLOR-STILES RAG CUTTERS



New features prevent rag jamming, assure easier cleaning.

○ Feed roll mounted on pivoted arms. Holds rags firmly. May quickly be swung out of place to provide easy accessibility to end of feed apron, bed knife, and cutting assembly for cleaning.

● End plates incline inward to overcome tendency of rags to disperse outward. Enlarged space between cutting element and frame prevents jamming.

Four fly knives instead of six are now provided. Cutting is equally uniform and fine — and time for changing knives is reduced to 1/3 that required for changing six knives.

Write for illustrated folder.

TAYLOR, STILES & COMPANY

10 Bridge Street
Riegelsville, New Jersey

PAPER TRADE JOURNAL CLEARING HOUSE

HELP WANTED—One Dollar a line. Minimum charge $4.00.
SITUATIONS WANTED—One Dollar a line. Minimum charge $4.00. If repeated ½ rate will be charged for each consecutive repetition.

FOR SALE—One Dollar a line. Minimum charge $4.00.
WANTED—One Dollar a line. Minimum charge $4.00.
OPPORTUNITIES—One Dollar a line. Minimum charge $4.00.

Classified advertising space may also be purchased at $6.00 per single column inch. All classified advertisements are payable in advance.
If box number is used—75 cents additional
Address replies to advertisements appearing under Box Number in care of PAPER TRADE JOURNAL, 15 West 47th Street, New York 19, N. Y.

Help Wanted

CONFIDENTIAL EMPLOYMENT SERVICE

We will welcome an opportunity to be of service. If you are available for a position in paper or pulp manufacturing or paper converting, SEND US YOUR RESUME. Many attractive positions at excellent salaries are open for top-notch men. No fee to be paid unless you accept employment through us. Negotiations are confidential.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St. Liberty 2-6547 Boston 8, Mass. J-30

"TOUR BOSS WANTED"

IF YOU ARE A TOUR BOSS OR AN EXPERIENCED MACHINE TENDER WITH ABILITY AND AMBITION TO BE A TOUR BOSS WE HAVE AN OPENING. PROGRESSIVE TWO MACHINE BOARD MILL IN EASTERN PENNSYLVANIA. MANUFACTURING SET-UP AND FOLDING BOXBOARDS AND SPECIALTIES. STEADY EMPLOYMENT. IF AVAILABLE, WRITE BOX 56-235, PAPER TRADE JOURNAL, GIVING EXPERIENCE AND AGE. A-13

WANTED—Eastern Sales Manager

Unusual opportunity.

Manufacturer of new and superior line of basic chemicals has opening for a capable chemist. Experienced in paper and pulp manufacturing industry requirements. Must have sales ability. Purchasers are principally car lot buyers that re-order without further solicitation or who contract for yearly supplies. Interesting work. Give record of past experience. References held confidential. Address box number 56-236, Paper Trade Journal. J-30

Help Wanted

PAPER MEN
$5,000 to $25,000
SALES—PRODUCTIONS—TECHNICAL

Top mills, converters, and jobbers from Coast to Coast badly need qualified men at every level. Choice spots open in folding, corrugated, multi-wall bags, transparent and flexible-wall pkg., coarse, fine and paper specialties of all kinds.

I am a paper man myself. If your record of performance entitles you to increased responsibility and greater potential, I can and will help you to attain it. You can contact me in absolute confidence.

GEO. M. SUNDAY & ASSO.
Personnel Consultant to the Paper Industry
6 E. Monroe Chicago AN 3-1970 TF

SALARIED POSITIONS $5,000 to $35,000. We offer the original personal employment service (established 46 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered: present position protected. Ask for particulars. R. W. BIXBY, INC., 563 Brisbane Bldg., Buffalo 3, N. Y. J-30

WANTED—Tour Foreman—For night work. North Jersey Fourdrinier Board Mill—nine point and specialties. Address Box 56-241 care Paper Trade Journal. A-13

WANTED — Salesman — Midwestern Mill manufacturing packing material and light weight board, has opening with good future for right man. Address Box 56-237 care Paper Trade Journal. A-6

Help Wanted

TECHNICAL MEN

Outstanding opportunity for two qualified technicians to assume positions of responsibility with a long established dyestuff manufacturer.

1—TECHNICAL REPRESENTATIVE
Charged with running full scale mill demonstrations of our products. Travel independently and with sales force. Must be able to adapt laboratory formulas to mill conditions. Mill experience and dyestuff knowledge are essential.

2—LABORATORY TECHNICIAN
Responsible for preparation of preliminary formulas for our customers. Must be familiar with wide range of paper grades and coloring methods. Knowledge of dyes essential. Mill experience an asset.

Both positions require a high degree of initiative and personal responsibility. If you qualify, reply giving personal history, experience, and salary expected. All applications will be held in the strictest confidence. Address replies to the Paper Department.

SANDOZ CHEMICAL WORKS, INC.
61-63 Vandam Street, New York 13, New York A-6

ENGINEERING, PULP & PAPER OR CHEMISTRY GRADUATES

The Board Division of this expanding West Coast Packaging manufacturer has three career openings which Engineering, Pulp & Paper, and Chemistry graduates are invited to investigate. Indoctrination and training for eventual movement into production supervision will be handled on a project basis in mill scale work for process improvement.

These are excellent positions for gaining broad experience in paperboard production with advancement opportunities leading to plant management. Salaries dependent upon previous experience. For further information, please write

J. A. Connolly
P. O. Box 3611
San Francisco 6, California A-13

CHEMISTS—CHEMICAL ENGINEERS

Integrated S. Georgia Paper Mill needs experienced Chemists and Chemical Engineers for expanding Technical Department. New research building. Mail resume to:

Personnel Department
St. Marys Kraft Corporation
St. Marys, Ga. A-13

CHEMIST or CHEMICAL ENGINEER

Pulp and Paper

Dorr-Oliver, an international firm of process engineers, offers a challenging future to a young graduate who has about two years' mill experience.

Initial assignment: pulp research, development, and testing. Location: Connecticut.

Future assignment: according to interest and ability, in Research and Development, in Sales Engineering, or as P/P Technical Specialist.

Address detailed resume to:

E. E. Johnson, Director of Personnel

Dorr-Oliver Incorporated

Barry Place, Stamford, Connecticut

J-30

FOR SALE

BARKING DRUM
1—10′ x 30′.

BEATERS
2—1500 lb. rag beaters, Valley Iron, bandless rolls, 54″ x 48″, cast iron tubs, with motors.
Write us regarding your requirements.

BREAKER STACK
Write us regarding your requirements

CALENDER STACKS
1—3 roll 30″ face friction Calender Stack (Holyoke), 2 iron rolls, 1 cotton roll and 1 spare cotton roll.
1—3 roll 84″ calender stack.
1—4 roll 72″ Calender Stack. (Extra heavy duty).
1—5 Roll 56″ (Heavy Duty)
1—5 Roll 90″.

CHIPPERS
1—96″ Murray 4 knife Chipper—anti-friction bearings.
24—Chipper Knives 15⅞ x 8¼, 2 slot.

CLASSIFINER
1—Dilts Classifiner, practically new with motor.

CORE MACHINES
Write us regarding your requirements

CREPER AND WAXER
1—80″ Creper and Waxer, excellent condition, details on request.

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.

CYLINDER MOLDS
2—30″ diameter x 72″ face.
1—30″ diameter x 92″ face.
2—36″ diameter x 54″ face.
1—36″ diameter x 84″ face.
2—36″ diameter x 86″ face, with vats.
2—36″ diameter x 110″ face.
3—36″ diameter x 90″ face, 18″ diameter couch rolls.

DIGESTERS
2—14′ Globe Rotary Digesters.

DRIVES
1—Sandy Hill right angle 50 H.P. (4.75 to 1)
1—Farrel Birmingham enclosed drives, 200 H. P. anti friction bearings, 5.45 to 1, new equipment.
1—Jones 21 H. P., ratio 10 to 1 (enclosed angle drive).
1—#4 Reeves Drive.
1—Vaughn 100 H.P. enclosed angle drive. Ratio 7 to 1.
1—#4 Reeves Drive totally enclosed Class E with 25 HP splash proof motor.
2—Waterbury Hydraulic Variable speed line shaft drives (from 40 to 100 h.p.).

DRYERS
5—24″ diameter x 54″ face, with bearings.
5—28″ diameter x 80″ face with anti-friction bearing.
4—36″ diameter x 115″ face, with gears & bearings.
6—36″ diameter x 44″ face with frames gears & bearings.
1—36″ diameter x 66″ face.
1—36″ diameter x 67″ face.
6—36″ diameter x 76″ face.
2—Dryers 36″ diameter x 84″ face, with bearings gears & frames.
2—36″ diameter x 80″ face.
1—Dryer 48″ diameter x 134″ face.
1—48″ diameter x 144″ face.
4—48″ diameter x 50″ face, gears & bearings.
12—Bagley & Sewall, 48″ diameter x 127″ face, with gears and bearings.
5—60″ diameter x 80″ face, complete.

DYNOFINER
"Rice Barton," details on request.

EMBOSSING CALENDERS
1—43″ 3-Roll Embossing Calender.
1—45″ Meadows 2 roll embosser.
Write us regarding your requirements.

EXTRACTOR ROLLS
1—Extractor roll, 26″ diameter x 104″ face, with rubber couch roll.
1—Rice Barton & Fales Extractor Roll, 26″ diameter x 104″ face, with rubber couch roll.

FELT CONDITIONER
1—160″ Vickery, complete.

FILTER
1—Oliver Filter, cylinder mold 64″ diameter x 120″ face, brand new all steel vat.

FLAT SCREENS
1—14 plate Packer, roller shoes.

GEARS
Write us regarding your requirements.

GRINDERS
2—3 pocket Grinders.

JORDANS
1—#4 Emerson Jordan, anti-friction bearing.

LABORATORY EQUIPMENT
1—Ball Mill.
1—Electric Oven (Williams Standard Pulp Testing Apparatus).
1—Cylinder Mold, 11″ face x 28″ diameter, anti friction bearings.
Write us regarding your requirements.

LAMINATING MACHINES
1—72″ Hudson-Sharp laminating machine, reverse coater.
2—26″ Polyethylene laminators.
2—84″ Asphalt laminators.
1—72″ Beloit Laminator, complete with drive.

MOTORS
1—50 H.P. Upright motors, air cooled 3/60/440, 1150 R.P.M. (Ball Bearing).
Write us regarding your requirements.

PRESSES
Write us regarding your requirements.

PRESS ROLLS
1—Chilled iron, chrome plated, 12″ x 100″
1—Chilled iron, chrome plated, 10″ x 74″
2—Chilled Iron, chrome plated, 9″ x 72″.
2—Chilled Iron, chrome plated, 14″ x 72″.

PULLEYS
Various cone and assorted pulleys.

PULPERS
Write us regarding your requirements.

PUMPS
1—Shartle Bros. high density pump, 2000 g.p.m., 62 ft. head.
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.

RAG CUTTERS
Write us regarding your requirements.

REELS
1—86″ 2 bowl reel.
1—84″ 3 bowl revolving reel.
1—100″ Rice Barton 2 bowl Reel, heavy duty.
1—123″—3 bowl revolving reel.
1—134″—2 drum.
1—72″ Downingtown Reel, 2 bowl.

REFINERS
1—12″ Wiener Refiner.
1—#185-C-36″ Bauer Refiner, reconditioned, as good as new.

ROLLS
1—Rubber Couch Roll—20″ diameter x 108″ face.
Felt, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber, Iron, etc.).

ROTARY SCREENS
1—#1A Bird, copper vat.
Write us regarding your requirements.

SAVEALLS
1—5 Bird, with spare cylinder mold.
2—Sandy Hill, 36″ diameter x 86″ face cylinder molds, anti-friction bearings and couch rolls.

SCREEN PLATES
Bird Rotary screen plates.
Plates (new) for flat screens.
Write us regarding your requirements.

SHEETERS
1—78″ Moore & White Sheeter (Simplex), layboy and 6 roll backstand.
1—85″ Hamblet Sheeter (duplex) layboy, 11 rollback stand.
1—140″ Hamblet (Simplex).
1—140″ Hamblet (Duplex).

SHOWERS
Write us regarding your requirements.

SHREDDER
1—Mitts & Merrill air-fluff excelsior paper shredder, with motor. Excellent condition.

SLITTERS & WINDERS
1—42″ Cameron type 24-3A.
1—42″ Cameron—Type 9.
1—42″ Cameron—Type 6.
1—50″ Cameron—Type 6.
2—52″ Cameron—Type 10.
1—62″ Cameron—Type 6.
1—82″ Cameron Type 12.
1—157″ Cameron—Type 18.
1—177″ Cameron (Shear) Type 19.
1—40″ Fales Slitter.
2—60″ Kidder.
1—40″ Langston.
1—120″ Moore & White, 4 drum winder.
2—86″ Two Drum Moore & White, 50″ diameter rewind.

SLITTING DEVICE
84″—Quick change slitting device shear cut, complete, practically new.

STEAM JOINTS
18—3″ Johnson steam joints (new).

STOCK PUMPS
1—8 x 18 Shartle Triplex.
2—10 x 20 Shartle Triplex.
1—12 x 20 Shartle Triplex.
Advise as to your requirements.

SUCTION BOXES
Write us concerning your requirements.

SUCTION COUCH SHELL
1—Downingtown suction couch shell only, 127½″ face x 26″ diameter.

SUCTION COUCH ROLLS
1—36″ diameter x 246″ face, SKF bearings.
1—Downingtown suction couch roll, complete (new) 127½″ face x 26″ diameter.
1—Sandusky Suction Couch Roll 18″ diameter x 98″ face.

SUCTION FELT ROLL
1—Gilbert & Nash 122″ face.

SUCTION PRESS ROLLS
1—Sandusky Suction Press Roll 130″ drilled face x 14⅞″ diameter.

SUPER CALENDER STACK
1—9 Roll 56″

TABLE ROLLS
22—Rubber Covered 10″ diameter x 246″ face. Write us regarding your requirements.

THICKENERS
1—Pusey & Jones, 42″ diameter x 146″ face cylinder mold, with 18″ diameter couch roll.
Write us regarding your requirements.

TOILET WINDERS
2—72″ Hudson-Sharp (Surface type winder).

TRIMMERS
1—64″ Seybold cutter.
1—63″ Oswego cutter.
1—50″ Oswego.

VACUUM PUMPS
2—L-6 Nash vacuum pumps.
2—L-5 Nash vacuum pumps.
2—L-4 Nash vacuum pumps.
2—#1 Nash Hytor vacuum pumps.

VALVES
8—10″ 3 way DeZurik Dump Valves.
6—12″ 3 way DeZurik Dump Valves.

VATS
2—D. J. Murray Company Vats, iron ends, for 42″ x 120″ cylinder molds, overflow and counterflow.

WET MACHINE
1—72″ Wet Machine.

YANKEE DRYERS
1—84″ diameter x 56″ face.
2—108″ diameter x 72″ face.

Paddy Ross, Pres.
377 Frelinghuysen Ave.*

J. J. ROSS COMPANY

Tel.—Bigelow 3-3720

Ben Kurs, Treas.
Newark 5, N. J.

Help Wanted

CHIEF PAPER CHEMIST

Immediate opening for graduate chemist with heavy experience in paperboard industry. Must be experienced in board testing and research, preferably in converting field. Position is that of Chief Paper Chemist with large Southeastern manufacturer. Excellent starting salary and employee benefits. Career position with expanding, well established company. Submit resume confidentially to Box 56-240 c/o Paper Trade Journal. J-30

WANTED

TOUR FOREMEN, MACHINE TENDERS, BACK TENDERS, THIRD HANDS, STOCK PREPARATION FOREMEN, FINISHING ROOM FOREMAN, FOR NEW MODERN KRAFT PAPER MILL IN SOUTH AMERICA, PRODUCING KRAFT CEMENT BAG, LINER BOARD, CORRUGATING MEDIUM, KRAFT WRAP AND M/G SPECIALTIES, TWO PAPER MACHINES, SPEEDS UP TO 1000 FEET PER MINUTE. MUST BE STEADY AND SOBER. SEND COMPLETE RESUME OF EXPERIENCE, EDUCATION, REFERENCES, AND SALARY DESIRED IN FIRST LETTER. GOOD LIVING CONDITIONS IN AGREEABLE CLIMATE. ABILITY TO SPEAK SPANISH DESIRABLE. ADDRESS REPLIES TO BOX 56-239 CARE OF PAPER TRADE JOURNAL.

J-30

Paper manufacturer with multi-plan operation has opening for recent engineering graduate in its staff Quality Control organization. It is desirable that this man have quality control or statistical training. More important, however, is that this man be a self-starter with initiative and ability to work with others. Location: Western Massachusetts. Please reply to Personnel Department, Peter J. Schweitzer, Inc., Lee, Massachusetts. J-30

Situations Wanted

EXECUTIVE ENGINEER

Graduate Mechanical Engineer with broad experience in plant and facilities, engineering in pulp and paper converting—eight years chief plant engineer; later production engineer and factory manager. Multi-plant experience. Seeking broader opportunity preferably in mid-west or west coast areas. Age 41. Address Box 56-208, care Paper Trade Journal. JL-30

MECHANICAL ENGINEER

With very extensive experience dating from the early twenties in the pulp, paper and board industry. High level positions in Engineering, Power and Production. Very familiar with conventional processes and equipment for pulping, manufacturing and conversion. Well versed in labor relations and personnel problems. Open for connection where this background can be applied to improve operation, modernization or expansion. Address Box 56-228 care Paper Trade Journal. A-13

WORKS MANAGER—Production Executive; paper, board and conversion; seeks challenging opportunity in organization needing man exceptionally capable in organization; manufacturing; and labor relations. Employed. Diversified lines. Address Box 56-109 care Paper Trade Journal. J—30

Situations Wanted

Man with 36 years experience in the KRAFT PULP & PAPER INDUSTRY is looking for a new connection. Held successfully the position of chief chemist, also superintendent, is familiar with the use of southern and northern soft and hardwoods, also with pulp research, interested in low costs, good quality and production. May also be of assistance if you are building a new plant,"

Address Box 56-220 care Paper Trade Journal. J-30

PAPER BOARD MILL SUPERINTENDENT

29 years of experience manufacturing high grade folding boxboard and Frozen Food boxboard. 29 years background laboratory experience manufacturing mostly all grades of boxboard on seven and eight cylinder machines from virgin pulp and old paper stock. Box 56-238 care The Paper Trade Journal. A-27

PAPER COATING MACHINERY MANUFACTURERS — Waxing, Oiling, Carbon Laboratory Coating and Treating and Flat Ream Measuring and Converting Machines. New Improvement. THE MAYER MACHINE COMPANY, INC., 1313 Buffalo Road, Rochester, 11, N. Y. TF

For Sale

IMMEDIATE DELIVERY WHILE THEY LAST

13—BIRD #3A ROTARY SCREENS. STAINLESS STEEL VATS. INCONEL PLATES. ENTIRE SCREEN ACID RESISTANT. LATEST TWO MOTOR DESIGN. LIKE NEW CONDITION. REPLACE YOUR SMALL OUT OF DATE ROTARY SCREENS NOW AT PRICES YOU CANNOT AFFORD TO PASS-UP.

ROSS PAPER MACHINERY CO.
265 PASSAIC STREET
NEWARK 4, N. J.
Humboldt 2-2177 TF

STAINLESS STEEL

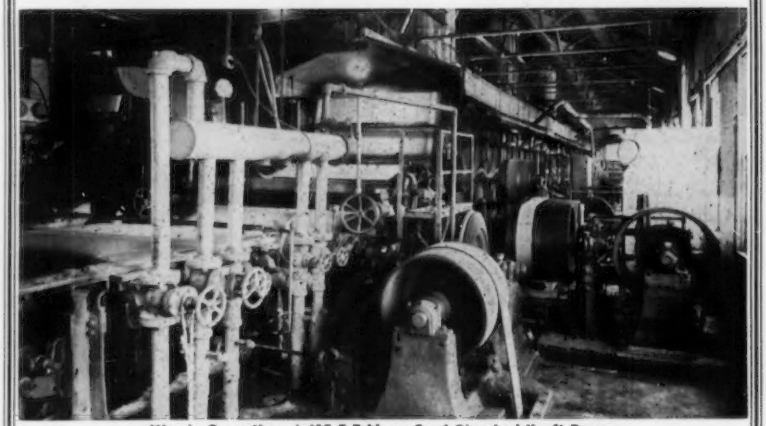
35'—10" 347 S.S. Pipe; 60,000' — 1" S.S. Tubing; 500 Valves ½" to 4".

NASH REBUILT VACUUM PUMPS

#H-8, #H-7, #H-6, #L-5, #4, #2.

Brill Equipment Company
2401 Third Ave., New York 51, N. Y. J-30

FOR SALE 86" FOURDRINIER PAPER MACHINE



Was in Operation at 415 F.P.M. on Semi-Chemical Kraft Paper

FOURDRINIER SECTION

Wire 86" x 68'-10¼"
Wooden head box—adjustable slice with holey roll and drive
34—Table rolls 4" dia.—plain bearings
4—Suction boxes
1—Bronze covered breast roll 13" dia. x 89½" face, anti-friction bearings
All wire rolls with bearings, stretcher and wire guide included
1—Suction couch roll 86" drilled face x 14½" dia., complete with stands, drive gears and spare used shell.

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1st PRESS (Straight Press)
Bottom roll—rubber covered 18" dia. x 90" face
Top roll—brass covered—18" dia. x 92" face
2nd PRESS (Reverse Press)
Bottom roll—rubber covered—20" dia. x 92" face
Top roll—rubber covered—20" dia. x 88" face
These press sections are complete with stands, bearings, brackets, felt rolls, stretch rolls and felt guides.

DRYER SECTIONS

1ST SECTION—15 C.I. dryers 90" face x 48" dia. complete with gears, bearings, top frames and complete felt equipment.
2ND SECTION—15 C.I. dryers 80" face x 48" dia. complete with gears, bearings, top frames and complete felt equipment.

CALENDER STACK

1—80" face 3-roll calender stack. Bottom roll 17¾" dia. Middle roll 12" dia. Top roll 8" dia. The machine is using just this stack. If desired, we can furnish at extra cost an additional calender stack of 5 rolls.

REEL

1—Waldron 84" automatic Drum Reel. Rewinds 48" diameter roll.

REWINDER

1—Warren 84" two-drum slitter and rewinder, for rewinding to 42" maximum dia.

DRIVES

Complete mortise gear drives with pulleys and line shafting with pulleys, etc. are furnished.

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ROSS PAPER MACHINERY COMPANY
265 PASSAIC STREET • NEWARK 4, NEW JERSEY • Telephone Humboldt 2-2177 TF

For Sale

For Sale

For Sale

SODA PULP MILL AND PULP DRYING MACHINE

8—P & J—Cl bleach tanks 12' dia. x 12' deep—paddle agitators.
3—3-Stage Thompson washers—with cylinder moulds 36 x 100.
2—2-Stage Thompson washers—36 x 100—same as above.
3—12 Plate Packer flat screens
8—Vertical digesters—1000 cu. ft.—110 lb. steam pressure.
3—4000 lb. scales.
3—Sterling 1000 HP boilers—bent tube—250 lb. pressure—with stokers, pumps, etc.

80 Ton per day pulp drying machine—consisting of:
1—P & J single cylinder machine—cylinder 36 x 126.
2—Main presses.
41—Dryers—48 x 120
1—2 drum upright reel
1—winder shaft
1—slitter unit—flat screens—steam turbines—water pumps—fan pumps—stock pumps—vacuum pumps.

NEW 3A — 100 BIRD SCREENS

4—NEW Bird Machine Company—3A—100 Bird screens—Assembly #4—Copper tubs—dual motors—flow boxes—shower pumps—just received from factory—BRAND NEW—factory guarantee.

UNITED PAPER MACHINERY CORPORATION

P. O. BOX 40 LOCKPORT, N. Y. TELEPHONE LOCKPORT—4-8862

A-6

FOR SALE

84" Oswego Gillotine—mill type—power back gauge.
No. 69 Two Color Miehle Offset size 46½ x 67½, Dexter auto. feeder and pile dl. A.C. motor.

Specializing in Used and Rebuilt Printing and Die Cutting Presses

NORTHERN MACHINE WORKS
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Telephone: MArket 7-3800 J-30

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Small Paper Mill. Ready to run. Versatile production includes tissue, toweling, twisting or manifold, light weight papers. In Stillwater, New York, on the Hudson River. Includes water rights, brick buildings, room for expansion. Very reasonable. Terms. Write Box 56-133 care Paper Trade Journal. TF

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Paper Mill Felts

Highest Prices Paid
Advise quantity description and
We will advise Price

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YOUR GUARANTEED CASH MARKET
FOR SURPLUS MACHINERY
WITH IMMEDIATE REMOVAL FROM YOUR MILL

Ross Paper Machinery Company

265 Passaic Street, Newark 4, New Jersey Tel. HUmboldt 2-2177

J-30

WANTED

Job Lots of Paper & Paperboard

We need a substantial supply of odd lots, side rolls, obsolete, surplus, or damaged lots of paper. Will buy all grades, any quantity. MELROSE PAPER CO., INC., 208 Walnut St., Philadelphia 6, Pa. Market 7-0800. TF

FOR SALE

62" Hamblet Sheeter with backstand and Layboy.
72" Hamblet Sheeter with backstand, electric eye and drive.
96" Moore & White Sheeter with Layboy and backstand.
44" Mamco Ream Counter
50" Mamco Layboy and counter.
40" Cameron Type 24-3A.

Many other items

THOMAS W. HALL CO.,
Stamford, Conn. TF

FOR SALE

6—Stainless Steel Vats—with 36" diameter x 100" face cylinder moulds—anti-friction bearings—2 spare cylinder moulds. All in excellent condition.

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Newark 5, New Jersey
Bigelow 3-3720

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Write General Paper to dispose of odd lots. Send offers on overruns, surplus stocks or seconds in sheets or jumbo rolls.

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Toronto, Ontario, Canada A-27

FOR SALE—Slitters and Rewinders; Sheeters: Die Cutters; Waxers & Laminators; Printers; Box Machines. In standard makes, models and sizes. Write for: USED MACHINE LISTING. Address Box 56-153 care Paper Trade Journal. TF

FOR SALE—10 tons Kraft colored Chip sheets, bundled, 14" x 14"—.080—$60.00 per Ton F.O.B. Erie, Pa. Write P. O. Box 792 or phone Erie: 28-2376. J-30

FOR SALE

2 SAVALLA FLOTATION SAVE-ALLS SIZE IV, 1000 GPM. COMPLETE WITH TANKS, PUMPS, AND MOTORS. PERFECT CONDITION. EXTREMELY EFFICIENT FOR PROPER APPLICATION.

Address Box 56-232 care Paper Trade Journal J-30

FOR SALE—81" Dietz Toilet Machine, 4½" x 4½", with Model A Lawton Wrapper, now in operation. Cost over $10,000. Asking $3500 for both, F.O.B. factory. General Cellulose Co., Garwood, N. J. J-30

Wanted

WANTED

ALWAYS BUYING USED PAPER
AND PULP MILL EQUIPMENT

J. J. ROSS COMPANY
377 Frelinghuysen Ave., Newark 5, N. J.
Tel: Bigelow 3-3720 J-30

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Buy U.S. Savings Bonds

A

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Acme Steel Co. —
Albany Felt Co. —
Allegheny Ludlum Steel Corp. —
Allis-Chalmers —
Aluminum Co. of America —
American Bitumuls & Asphalt Co. —
American Cyanamid Co., Paper Chemicals Dept. —
American Defibrator Co. —
American Steel & Wire Co. 10
Antara Chemicals, Sales Div. Gen. Aniline & Film Corp. —
Apmew, Inc. —
Appleton Machine Co., The —
Appleton Wire Works —
Appleton Wood Products Co. —
Armco Drainage & Metal Products —
Armco Steel Corp. —
Armstrong Machine Works —
Asten-Hill Mfg. Co. —
Automatic Transportation Co. —

B

Babcock & Wilcox Co. —
Bahr Bros. Mfg. Co. —
Bailey Meter Co. —
Bart Manufacturing Co. —
Bauer Bros. Co. —
Becco Chemical Div. Food Machy. & Chem. Corp. —
Beckman Instruments —
Beloit Iron Works Co. —
Bird Machine Co. 17
Bixby, R. W., Inc. 50
Black-Clawson Co. 4
Boler Petroleum Co. 46
Borden Co. —
Bowsher Co., N. P. —
Brandon Sales, Inc. —
Bristol Company —
Brown Co. —
Buffalo Forge Co. —
Buffalo Pumps, Inc. 3
Burgess Pigment Co. —

C

Cady, E. J., & Co. —
Calgon, Inc. —
Cambridge Instrument Co. —
Cameron Machine Co. —
Carthage Machine Co. —
Central National Corp. Front Cover
Central States Engrg. Co. —
Chemipulp Process, Inc. —
Chicago Bridge & Iron Co. —
Cities Service Oil Co. —
Clark-Aiken Company —
Classified Advertising 50
Clearing House 50
Cleveland Worm & Gear Co. —
Coffin, J. J., Jr., Co. —
Columbia-Geneva Steel Div. U. S. Steel Corp. 10
Columbia-Southern Chem. Corp. Sub. of Pittsburgh Plate Glass Co. 8
Combustion Engrg. Co. —
Corn Products Sales Co. —
Crane Co. —
Crucible Steel Corp. of America —
Curtiss Wright Corp. —

D

Davis, Frank H., Co. —
Day, J. H., Company —
DeLaval Separator Co. —
Dewey & Almy Chemical Co. —
DeZurik Shower Co. —
Diamond Alkali Co. —
Dicalite Div., Great Lakes Carbon Corp. —
Dietz Machine Works —
Dilts Machine Works 4
Dodge Mfg. Co. —
Dow Chemical Co. —
Dowell, Inc. —
Draper Bros. Co. —
du Pont, E. I., de Nemours & Co., Dyestuffs Dept. —
du Pont, E. I., de Nemours & Co., Electrochemical Dept. —
du Pont, E. I., de Nemours & Co., Organic Dept. —

E

Eastman Chemical Products, Inc. —
Eaton Manufacturing Co. —
Ebasco Services, Inc. —
Egan, Frank W., & Co. —
Elixman Paper Core Co. —
English China Clays Sales Corp. —

F

Falk Corporation —
Farrel-Birmingham Co., Inc. —
Farval Corp. —
Ferguson, H. K., Co. —
Fiske Bros. Refining Co. —
Fitchburg Screen Plate Co. —
Foxboro Co. —

G

Garlock Packing Co. —
Geigy Dyestuffs Div., Geigy Chemicals Corp. —
General Dyestuffs Co. —
General Electric Co. —
Gibbs-Brower Co. —
Gilbert & Nash Co. —
Glidden Company 37
Goodrich Chemical Co. —
Goodrich Industrial Products Co. —
Goodyear Tire & Rubber Co. Back Cover
Gottesman & Co. —
Grace, W. R., & Co. 21
Grinnell Co., Inc. —
Gulf Oil Corporation —
Gurley, W. & L. E. —

H

Hagan Corp. —
Hall, Thomas W., Inc. 53
Hamblet Machine Co. —
Hendrick Mfg. Co. —
Hercules Powder Co. —
Heyden Chemical Co. —
Hooker Electrochemical Co. —
Huber, J. M., Corp. —
Hubinger Company —
Hungerford & Terry Inc. —
Huyck, F. C., & Sons —

I

Improved Machinery, Inc. 19
International Wire Works —
Isotope Products 47

J

Jefferson Chem. Co. —
Jeffrey Mfg. Co. —
Jenkins Brothers —
Jenkins, M. W., Sons, Inc. —
Johns-Manville Corp. —
Johnson Corp., The —
Johnson, Alvin H., & Co. 44
Jones, E. D., & Sons Co. 48

K

Kalamazoo Tank & Silo Co. 48
Kidder Press Co. —
Knox Woolen Co. —

L

Langston, Samuel M., Co. —
Laucks Laboratories —
Lindsay Wire Weaving Co. —
Link-Belt Co. —
Lobdell United Co. —
Lockport Felt Co. —
Lodding Engineering Co. —
Lukens Steel Co. —
Lunkenheimer Co. —
Lyddon & Co. —

M

Magnus Metal Co. 49
Magnuson Products Corp. —
Main, Charles T., Inc. 46
Manchester Machine Co. —
Manheim Mfg. & Belting Co. —
Mead Board Sales Inc. —
Mead Pulp Sales, Inc. —
Merrick Scale Co. —
Metallizing Engrg. Co. —
Minerals & Chem. Corp. —
Minnesota Mining & Mfg. Co. —
Monsanto Chemical Co., Paper Chem. Div. —
Monsanto Chemical Co., Plastics Div. —
Moore & White Co. —
Morden Machines Co. —
Morningstar-Nicol Inc. —
Mount Hope Machinery Co. —
Multi Metal Wire Cloth Co. —
Murray, D J., Mfg. Co. —

N

Nash Engineering Co. —
National Aluminate Co. —
National Starch Products, Inc. —
National Tube Div., U. S. Steel Corp. 10
Naylor Pipe Co. —
Nichols Engrg. & Research Corp. —
Nopco Chemical Co. —
Nordstrom Valve Div. of Rockwell Mfg. Co. —
Norton Co. —

O

Oakite Products, Inc. —
Ohio Injector Co. 2
Olin Mathieson Chem. Corp. 18
Osborne Paper Mill Equipt. Corp. —

P

Paper Converting Machine Co. —
Paper Corp. of U. S. 48
Parsons & Whittemore —
Penick & Ford, Ltd. —
Perkins, B. F., & Sons, Inc. 20
Perkins Goodwin Co. —
Personnel Service Associates —
Pioneer Paper Stock Co. —
Pittsburgh Piping & Equip. —
Pittsburgh Plate Glass Co. —
Poirier Control Co. 46
Potdevin Machine Co. —
Powell Valves —
Price & Pierce, Ltd. —
Pusey & Jones Corp. —

R

Railway Supply & Mfg. Co. —
Raymond, Chas. P., Service, Inc. 50
Read Standard Corp., Blower Stoker Div. —
Ready-Power Co. —
Record Fdy. & Machine Co. —
Red Ray Mfg. Co. —
Reliance Elec. & Engrg. Co. —
Rem-Cru Titanium Inc. —
Restigouche Corp. —
Rice Barton Corp. —
Ridge Tool Company —
Riedel, Gus & Son —
Riegel Paper Corp. —
Rockwell Co., W. S. —
Rogers Sam'l C., & Co. 48
Rohm & Haas Co. —
Ronningen-Petter Co. —
Roosevelt Paper Co. —
Ross, J. J., Co. 51
Ross, J. O., Engineering Co. —
Ross-Midwest Fulton Co. —
Ross Paper Machinery Co. 52 & 53
Rotherm Engrg. Co. —
Rust Engineering Co. —

S

Sandusky Fdy. & Mch. Co. —
Seaboard Air Line R. R. Co. —
Semet-Solvay Div., Allied Chem. & Dye Corp. —
Shartle Bros. Machine Co. 4
Shell Chemical Corp. —
Shuler & Benninghofen —
Sigmamotor Inc. —
Sirrine, J. E., Co. 48
SKF Industries, Inc. —
Smidth, F. L., & Co. —
Socony Mobiloil Co., Inc. —
Sonoco Products Co. —
Southworth Machine Co. —
Stebbins Engrg. Co. —
Steelcote Mfg. Co. —
Stein, Hall & Co. —
Stevens, Charles R., Inc. —
Stone & Webster Engrg. Corp. —
Stowe-Woodward —
Sutherland Refiner Co. —
Swenson Evaporator Co. —

T

Taylor Instrument Co.s —
Taylor Stiles & Co. 49
Taylor-Wharton Company —
Tennessee Coal & Iron Co. 10
Texas Co. —
Texas Gulf Sulphur Co. —
Thiele Kaolin Co. —
Thomas Paper Stock Co. 48
Timken Roller Bearing Co. —
Titanium Pigment Corp. —
Torrington Co. —
Towmotor Corp. —
Trent Tube Co. 7
Tube Turns Plastics —

U

United Carbon Co., Inc. —
United Clay Mines —
United Paper Machinery Corp. —
U. S. Rubber Co. —
United States Steel Export Co. 10
United States Steel Supply Co. 10
U. S. Steel Corp. 10

V

Valley Iron Works Co. 6
Vanderbilt, R. T., Co. —
Viking Instruments, Inc. —
Virginia Smelting Co. —

W

Waldron, John, Corp. —
Walworth Co. —
Washington Steel Corp. —
Waterbury Felt Co. —
Weber, H. G., & Co. —
Webster Mfg. Co. —
West End Chemical Co. —
Westinghouse Electric Corp. —
West Virginia Pulp & Paper Co. 49
Weyerhaeuser Timber Co. 25
Wheeler Roll Co. —
Whiting Corp. —
Williams Apparatus Co., Inc. —
Williams-Gray Co. —
Wisconsin Wire Works —
Witco Chemical Co. —
Wolverine Equipt. Co. —
Wyandotte Chemicals Corp. —
Wyatt Metal & Boiler Works —

Y

Yale & Towne Mfg. Co. —

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While we strive for accuracy in preparing the above Index which is purely a service to our readers, we cannot be responsible for errors.

HUGHES PRINTING CO.
EAST STROUDSBURG, PA.

If production men in the pulp and paper field are important to you... maybe you'd like to know what publication is most important to them

Here's the story, as revealed by 8 independent surveys

1 333 men of known importance in the pulp and paper field (buyers of equipment and supplies) were asked to list the magazines of all types they read, and then to encircle the one most useful in their job. PAPER TRADE JOURNAL led the list.

2 Surveying the paper field, an advertiser found PAPER TRADE JOURNAL given *first* place more often than any other paper in the field by buyers of chemical cleaning service.

3 Research directors interested in the pulp and paper field gave first place to TAPPI as the journal most helpful in their work. PAPER TRADE JOURNAL was a very close second, and led all the others.

4 An advertiser surveyed his customers and prospects in the field of pulp and paper to determine publications read and considered "most helpful." PAPER TRADE JOURNAL took first place.

5 Executives in the 36 largest companies in paper and allied fields, as selected by Dun & Bradstreet, were asked by NEWSWEEK to list the trade magazines they read. PAPER TRADE JOURNAL led the list by a wide margin.

6 An advertiser of equipment asked his prospects to rate publications on the basis of papers read and papers preferred. PAPER TRADE JOURNAL came out on top.

7 An advertiser had his agency find out which publication ranked highest in each of three categories: title, geographical area, and size of mill. PAPER TRADE JOURNAL was first in all three categories.

8 Customers of a supplier to the pulp and paper field were asked to rank publications in order of their "helpfulness." First place went — you've guessed it — to PAPER TRADE JOURNAL.

Complete details on any of these surveys are available from any of our representatives.

Advertisers, too, vote for PAPER TRADE JOURNAL

The suppliers who sell to the pulp and paper field, and the agencies that represent them, consistently vote their dollars for PAPER TRADE JOURNAL by placing more pages of advertising in this publication than in any other in the field.

So far this year 50 new advertisers are using PAPER TRADE JOURNAL.

PAPER TRADE JOURNAL

"the most useful paper"

ABP ABC

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Photo courtesy Lone Star Bag and Bagging Company, Houston, Texas

Here's Lower Cost—In the Bag!

This firm manufactures paper leno fabric for bagging. Until recently their dyeing system left more than a little to be desired. But then they started using PLIOLITE LATEX as the binder.

PLIOLITE LATEX is a colloidal dispersion of a high-styrene-butadiene copolymer. The results of its use on the leno were beyond expectation: Much easier handling. Greatly reduced crocking. Less rejects during stitching. Increased water resistance. Higher strength bags. And almost *50% lower dyeing costs.*

Its use as a pigment binder is only one of several for PLIOLITE LATEX in the paper industry. Along with other water-borne resins and rubbers by Goodyear, it is bringing about major improvements in coatings, impregnants, inks and adhesives. For details plus the latest *Tech Book Bulletins*, write to: Goodyear, Chemical Division, Akron 16, Ohio.

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GOODYEAR
DIVISION

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